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ABSTRACT

Forty-five papers on linguistic theory and language research from the annual conference address these topics: aspects of discourse analysis; agreement languages; grammatical relations; syntax; phonology; grammar; contrastive linguistics; second language learning; syntax; quotations; topic management; aphasia; interpersonal communication; laughter; morphology; lexicon; lexico-semantics; language contact and linguistic borrowing; the language of science fiction; character creation in literature; phoneme-grapheme patterns; bimodal communication; suprasegmentals; and semiotics. Languages studied include English, Chinese, Spanish, Latin, French, Russian, African American Vernacular English, Arabic, and Mixtec. Selected papers include: (1) "Salience Schemes for Narrative Discourse; Some Broader Concerns" (Longacre); (2) "Requiem for LACUS 1995: A Poem" (Longacre); (3) "Agreement Languages" (Lehmann); (4) "How Grammatic Relations Are Determined" (Oller); (5) "Divergence or Convergence: A Syntactic and Phonological Study of Aave in 'Middletown'" (Huang); (6) "Cognitive Strategies for Expression of the Copula: A Crosslinguistic Approach" (Katz); (7) "Cross-Cultural Factors in ESL Reading: The Relevance of Relevance Theory" (Shi); (8) "Syntactic Specification of Morphological Categories: Government Versus Determination" (Lockwood); (9) "Discourse Structure and Communicative Power" (Malcolm); (10) "Japanese and Korean Basic Color Terms" (Ishii); (11) "Language: A View from the Ranks of Science Fiction Fandom" (Stanford); (12) Pitch and Vowel Reduction/Centralization" (Griffen); and (13) "Renaming the Baltimore Oriole: Another Kind of 'Correctness'" (Levin). (MSE)

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THE

TWENTY-SECOND

LACUS FORUM

1995

TOBY D. GRIFFEN

Series Editor

THE TWENTY-SECOND LACUS FORUM 1995

edited by Bates Hoffer

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CONTENTS

Preface xi

I. Special Lectures 1

1995 Presidential Address 3
Robert Longacre
SALIENCE SCHEMES FOR NARRATIVE DISCOURSE; SOME BROADER CONCERNS 5

Robert Longacre
REQUIEM FOR LACUS 1995: A POEM 15

Inaugural Lecture 17
Winfred P. Lehmann
AGREEMENT LANGUAGES 19

Invited Lecture 35
John Oller
HOW GRAMMATIC RELATIONS ARE DETERMINED 37

Winner of 1995 Presidents' Post-Doctoral Prize 89
Xiaozhao Huang
DIVERGENCE OR CONVERGENCE: A SYNTACTIC AND PHONOLOGICAL STUDY OF AAVE IN "MIDDLETOWN" 91

Winner of 1995 President's Pre-Doctoral Prize 105
Aya Katz
COGNITIVE STRATEGIES FOR EXPRESSION OF THE COPULA: A CROSSLINGUISTIC APPROACH 107

Winner of 1995 Robert J. DiPietro Memorial Award 117
Yili Shi
CROSS-CULTURAL FACTORS IN ESL READING: THE RELEVANCE OF RELEVANCE THEORY 119

II. Syntactic Studies 131

1. *David Lockwood*
SYNTACTIC SPECIFICATION OF MORPHOLOGICAL CATEGORIES: GOVERNMENT *VERSUS* DETERMINATION 133

2. *Shin Ja J. Hwang*
THE GRAMMAR AND DISCOURSE OF RELATIVE CLAUSES 144

3. *James E. Copeland*
THE COPULA IN TARAHUMARA: PATHS OF GRAMMATICALIZATION 157

4. *Carolyn G. Hartnett*
ENGLISH WORD ORDER MECHANISMS: INFORMATION MANAGEMENT SYSTEMS 167

5. *Faeqa Alsadeqi*
STUDY OF THE ARABIC SENTENCE: A TAGMEMIC APPROACH 177

6. *Janet Duthie Collins*
AN ANALYSIS OF OLD ENGLISH POETIC SYNTAX 183

7. *Patrick J. Duffley*
A LINGUISTIC APPROACH TO QUESTIONS 197

8. *Elly van Gelderen*
'BREAKDOWN' IN COORDINATION: *HOW AGREES THE DEVIL AND THEE ABOUT MY SOUL?* 205

III. Discourse Analysis and Interpersonal Communication 217

9. *Evelyn G. Pike*
QUOTATION FORMULAS OF SAN MIGUEL EL GRANDE MIXTEC: THEIR STRUCTURE, DISTRIBUTION AND FUNCTION 219

8

10. *Karen Malcolm*
DISCOURSE STRUCTURE AND COMMUNICATIVE POWER 229

11. *Kyong-Sook Song*
TOPIC MANAGEMENT STRATEGIES IN SPOKEN DISCOURSE: COGNITIVE AND SOCIAL ASPECTS OF TOPIC SHIFT IN KOREAN 239

12. *Angela Della Volpe, Edith Li, Stuart J. Ritterman, & Sarah E. Williams*
COHESION DEVICES IN APHASIC DISCOURSE 252

13. *Shirley A.N. Cole*
THE USES OF LAUGHTER IN DYADIC CONVERSATION 260

IV. Lexical, Morphological and Lexico-Semantic Studies 273

14. *Rose Mary Babitch*
THE FORMATION OF COMPLEX LEXEMES: A CONCEPTUAL ANALYSIS 275

15. *Barbara Bacz*
ADVERBIALS OF TIME AND THE POLISH CASE SYSTEM 283

16. *Michael Cummings*
COMPUTATIONAL ANALYSIS OF OLD ENGLISH LEXICAL COHESION 293

17. *Hiroshi Ishii*
JAPANESE AND KOREAN BASIC COLOR TERMS 304

18. *Minoji Akimoto*
FUNCTIONAL CHANGE IN P1+NP+P2 PHRASES 310

19. *Anas Hasan Abu-Mansour*
THE INTERFACE BETWEEN MORPHOLOGY AND PHONOLOGY: THE CASE OF BROKEN PLURALS IN ARABIC 320

V. Cross-Linguistic and Cross-Cultural Studies 341

20. *Mary Ellen Garcia*
WAR AND PEACE – SPANISH *VERSUS* ENGLISH IN SAN ANTONIO 343

21. *Andrew S. Allen*
ARABIC INFLUENCES ON SPANISH SYNTAX AND SEMANTICS 356

22. *Gloria Italiano Anzilotti*
BEYOND ENGLISH ENGLISH 362

23. *Douglas W. Coleman*
ONE SOURCE OF LEXICAL TRANSFER: 'PSYCHOTYPOLOGIES' OR SIMPLICITY CRITERIA? 377

24. *Linda Stump Rashidi & Zhan XiuQin*
CHINESE ARGUING IN ENGLISH 389

VI. Literature and Language Studies 397

25. *Lois M. Stanford*
LANGUAGE: A VIEW FROM THE RANKS OF SCIENCE FICTION FANDOM 399

26. *Dorothy E. Nameri*
THE DRAMATIC VALUE OF THE VERB IN CHARACTER CREATION: MACBETH (SHAKESPEARE 1906) 411

VII. General Topics 433

27. *Toby D. Griffen*
PITCH AND VOWEL REDUCTION/CENTRALIZATION 435

28. *Saul Levin*
THE EXTENSION OF THE LATIN ALPHABET TO REPRESENT THE SOUNDS OF OTHER LANGUAGES 441

29. *W.J. Sullivan, J. Casagrande, & D. Belyayeva*
THE CAUSES OF IRREVERSIBILITY IN BINOMIALS: ENGLISH, FRENCH, AND RUSSIAN 460

30. *Lynn S. Messing*
BIMODAL COMMUNICATION: BORROWING, CODE-SWITCHING: WHICH? 470

31. *Carl Mills*
VERBAL ACCOMPLICES: AUXILIARIES, STYLE, AND DISCOURSE IN ENGLISH 480

32. *Alan Melby*
ZEMBIAN LINGUISTICS: DIMENSIONAL (*VS.* CONVERSATIONAL) AND OPEN (*VS.* SEALED) 487

33. *Marvin K.L. Ching*
INCLUSIVE LANGUAGE OF *THE UNITED METHODIST HYMNAL*: DEGREES OF SUCCESS 508

34. *Gary D. Prideaux*
SERIAL *VERSUS* PARALLEL PROCESSING: THE STATUS OF MINIMAL ATTACHMENT 516

35. *William C. Spruiell*
ENTITIES AND EFFORT: TOWARD AN ALTERNATIVE SIMPLICITY METRIC 525

36. *Bruce W. Hawkins*
ON THE TREATMENT OF ICONOGRAPHIC REFERENCE IN COGNITIVE GRAMMAR 537

37. *Sebastian Shaumyan & Bernard Paul Sypniewski*
SEMIOTIC ANALYSIS OF MEANING 547

VIII. From the Twenty-First LACUS Forum 1994 557

38. *Saul Levin*
RENAMING THE BALTIMORE ORIOLE: ANOTHER KIND OF "CORRECTNESS" 559

PREFACE

The Twenty-Second Forum of the Linguistic Association of Canada and the United States (LACUS) took place at Trinity University in San Antonio, Texas, from August 8 to 12, 1995. Trinity University had wanted to host LACUS for over a decade, and its wish was finally granted. William O. Walker, Jr., Dean of Humanities and Arts, welcomed the attenders on behalf of the university and complimented LACUS not only on the quality of the papers and scholars, but also on the goals of the organization. Those of us who have been members for many years are familiar with such comments, but the new members heard them for the first time.

LACUS encourages younger scholars by awarding prizes for papers in different categories. The LACUS Presidents' Prizes went to Xiazhao Huang for the best paper presented at LACUS 1995 by a younger scholar and to Aya Katz for the best paper by a pre-doctoral presenter. The Robert J. DiPietro Memorial Award goes to a pre-doctoral or nontenured scholar whose paper contributes most to the advancement of research in the teaching or acquisition of second languages. In 1995 the award went to Yili Shi.

LACUS also encourages younger scholars and graduate students by being an organization that promotes a wide range of subject matter, theory orientation and linguistic opinions, and by welcoming questions and comments on an equal basis from all who attend. A common comment by younger new members is that they are able to chat informally with many of the scholars whose books they used as texts in graduate school. It has been my experience that all LACUS members are willing to help anyone in the field at any time. This collegiality has been a special mark of LACUS since its beginning.

This volume of the LACUS Forum series shows the diversity of topics that has been the mark of LACUS: from theory to phonology, from English to Arabic to Spanish to Chinese to Korean, from discourse to idiom, from science fiction to Shakespeare. The papers in this volume begin with the special papers: the presidential address by Robert E. Longacre, the inaugural lecture by Winfred P. Lehmann, the invited lecture by John Oller, and the prize winning papers as noted above. The remaining papers are grouped broadly into six topics: syntactic studies; discourse analysis and interpersonal communication; lexical, morphological and lexico-semantic studies; cross-linguistic and cross-cultural studies; literature and language studies; and general topics. Their arrangement is of necessity somewhat arbitrary since many papers could have fit into more than one topic area.

Trinity University had wanted to host LACUS for many years, since South Central Texas, especially San Antonio and Austin, has many linguists and other scholars interested in language. The Institute of Texas Cultures in downtown San Antonio is a cultural museum associated with the University of Texas system. It has exhibits on the twenty-seven major cultural groups which make up the heritage of the area. Its research collection is available to any interested scholar. The area is rich in linguistic and cultural diversity. Within a two-hour drive of San Antonio there are communities in which various languages thrive, including Spanish, German, Czech and Polish. More than 55% of the San Antonio population of just over 1,000,000 is of Hispanic descent. In this volume, Mary Ellen Garcia's "War and Peace – Spanish *versus* English in San Antonio" provides some information about the situation here.

The Twenty-Second LACUS Forum marked the end of the successful tenure of Adam Makkai as Executive Director, as he turned over the reins to Sydney Lamb. LACUS expresses its thanks to Adam Makkai for several years of leadership. The 1995 President was Robert E. Longacre, whose presidential address begins this volume. In addition, a poem he presented at LACUS is included at the end of this preliminary section. Valerie Makkai takes over the presidency in 1996. The meeting in San Antonio was a success only because of the work both of Ruth Brend, who chaired the Conference Committee and who worked tirelessly for months, and of Connie Eble, Secretary-Treasurer, whose constant support and encouragement was and is deeply appreciated. David Lockwood handled the meeting handbook which was excellently done as usual. Toby Griffen, LACUS Forum Series Editor, is the reason this volume has been completed. Along with his expert editorial advice, his organizational and communication skills are exemplary.

I

SPECIAL LECTURES

1995 PRESIDENTIAL ADDRESS

SALIENCE SCHEMES FOR NARRATIVE DISCOURSE: SOME BROADER CONCERNS

Robert E. Longacre
University of Texas at Arlington

I proposed a few years back a systematization of the types of information found in narrative discourse as posited by Grimes (1975). At the same time (1989) I was trying to provide some flexibility in regard to the sometimes vexing question of foregrounding versus backgrounding in narrative discourse. I was also, in effect, calling for a reexamination and possible ranking of the Hopper-Thompson parameters (1980) in regard to the above concerns. In this presentation I intend to trace out some of the broader implications of these concerns in terms not only of local dominance but in terms of discourse movement as well. Some of the ground covered here retraces our footsteps in previous articles but along the way I attempt to establish a better foundation for positing discourse salience schemes.

First of all, I reproduce here as Diagram I the salience scheme for English narrative as published in Longacre 1989:416.

Band 1 Storyline	Past (S/Agent) Action, (S/Agent/Patient) Motion Past (S/Experiencer) Cognitive events (punctiliar adverbs) Past (S/Patient) Contingencies
Band 2 Background	Past Progressive (S/Agent) background activities Past (S/Experiencer) Cognitive states (durative adverbs)
Band 3 Flashback	Pluperfects (events, activities, which are out of sequence) Pluperfects (Cognitive events/states that are out of sequence)
Band 4 Setting (expository)	Stative verbs/adjectival predicates/verbs with inanimate subjects (descriptive) "Be" verbs/verbless clauses (equative) "Be"/"Have" (existential, relational)
Band 5 Irrealis (other possible worlds)	Negatives Modals/futures
Band 6 Evaluation (author intrusion)	Past tense (cf. setting) Gnomic present
Band 7 Cohesive band (verbs in preposed/ Adverbial clauses)	Script determined Repetitive Back Reference

Diagram I: A Salience Scheme for English Narrative

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In regard to this diagram, note that the first four salience bands belong to the story world. Band 1, at the top, is the storyline itself, which clearly is the most foregrounded element in the story. Band 4, which is static and expository, is clearly backgrounded in that it is somewhat the antithesis of the movement which we find on the storyline. But I believe that is possible to rank two sorts of elements which occur between. Band 2 reports not happenings, whether events or actions, but on-going activity. An activity may span several events in a story: "The orchestra played on while an assassin appeared, silently carried out his mission, and escaped". It seems, therefore, to relate actions and activities -- often by temporal overlap. I attempt to recognize these facts by ranking activities in a band immediately contiguous to Band 1. A further concern is that either an action or an activity may be recounted out of sequence, e.g. in a flashback: "The assassin had carefully worked his way to the front of the crowd. He had been waiting for a crescendo in the music to cover up his shot". Again, it seems plausible, within the range of the first four bands to rank flashbacks -- parts of the story told out of sequence -- below both Bands 1 and Band 2 as Band 3.

If the first four bands belong to the story world -- and indeed establish it -- then what of the further material in the story? We are confronted with three other elements often found in stories. One such element, when found in a story, suggests as alternative construction of the story world. "If Napoleon had known that a sunken road ran across that portion of the battlefield he would not have ordered the cavalry charge that lost him the battle". So might run a line in recounting the story of Waterloo. But, in a very real sense, all such alternative constructions of history are beside the point: Napoleon *didn't* know and we all are aware of the outcome. All such sentences, whether contrafactual or modal involve alternative constructions of the world of the story. Whatever the assumptions of the world presented to us in the story, these sentences are *irrealis*, i.e., it didn't happen that way within the story world. I rank such material immediately under Band 4 -- making irrealis Band 5 -- because it is a parody on the storyworld and unintelligible without reference to the assumptions of that world. As Band 6 I rank an element which is even more remote from the above, viz., author intrusions via evaluative comment. Stories can get on perfectly well without such comments; perhaps they belong more to the theme or moral of the story than to its narrative content. The lowest ranking band, Band 7, is even further removed from the story in that it has to do more with the surface structure cohesion of the text: recapitulatory (reprise) elements which are functionally much like conjunctions: "John took off in his Piper Cub at 9:00 A.M. After taking off/after the take-off/immediately/and then he noticed a noise in the engine". Notice the considerable variety of form in such a back reference which ranges all the way from a clause to a nominalization to a conjunction. This variety is indicative of the basically cohesive function of such elements (cf. Longacre and Thompson, 1985).

Another way of presenting narrative salience is via a presentation of the same in terms of underlying parameters. While the salience scheme as presented above is an obvious take-off from Grimes (1975). Diagram II is in some respects more reminiscent of the Hopper-Thompson (1980) parameters except that the diagram involves a ranking and makes sequentiality a basic parameter.

The parameters presented in Diagram II are: (A) Substantive versus non-substantive (cohesive), (B) Narrative vs. non-narrative (discursive, narrator comments), (C) Realis vs. irrealis, (D) Dynamic vs. non-dynamic (static), (E) Sequential vs. non-sequential (e.g., flashback), (F) Punctiliar vs. non-punctiliar (activities rather then events). We generate the salience scheme by beginning with (A), peeling off its non-positive value and assigning it to the lowest band, Band 7; this leaves us with the positive value of (A) substantive, i.e., contributing to content , as a characteristic of the storyline. Similarly, peeling off the non-positive value of (B), narrator comment and evaluation, and assigning it to Band 6, leaves narrative material (not discursive) as a characteristic of the storyline. Peeling off the non-positive value of (C) gives Band 5, irrealis (alternative worlds) and leaves the positive value, realis, as a characteristic of the storyline. Thus, proceeding through the various parameters in order we obtain the lower bands of the scheme one by one and accrue further positive values for the storyline. The storyline, once reached, has

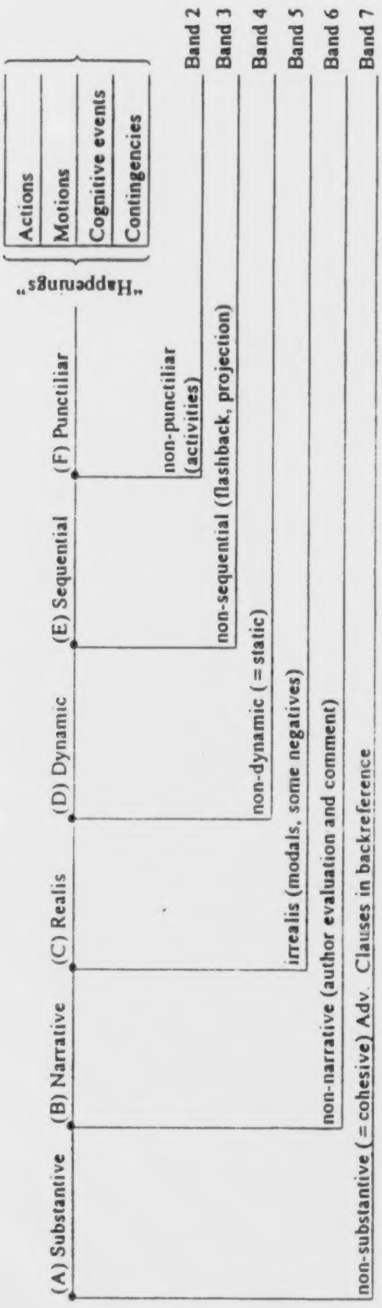
(A) Substantive
(B) Narrative
(C) Realis
(D) Dynamic
(E) Sequential
(F) Punctiliar
"Happenings"
Actions
Motions
Cognitive events
Contingencies
non-punctiliar (activities)
Band 2
non-sequential (flashback, projection)
Band 3
non-dynamic (= static)
Band 4
irrealis (modals, some negatives)
Band 5
non-narrative (author evaluation and comment)
Band 6
non-substantive (= cohesive) Adv. Clauses in backreference
Band 7

Diagram II. The Parameters that Underlie the Salience Scheme for English Narrative

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accrued the values substantive, narrative, realis, dynamic, sequential, and punctiliar. The storyline itself show a variety of verbs: motions, actions (including speech acts), cognitive events, and contingencies (things that happen to participants or props).

In my 1989 article I further suggested that not only could the sentences of narratives in any language be ranked according to salience in the manner just illustrated for English (but necessarily **emic** to narration in a given language) but I also suggested as "Hypothesis II" that, once such a schema is established, "within local spans of text an intersentential analysis can be carried out so that the sentences whose main verb(s)/clause(s) are of highest rank are structurally dominant in the local span and those of lower rank are structurally ancillary". I commented further on in the same paper "a good rank scheme of verbs/clauses should facilitate a good intersentential analysis " then went on to speculate that "a good intersentential analysis can confirm/modify the rank scheme". To illustrate the interplay of rank scheme and local span analysis I offer Diagram III.

This diagram is a stepped diagram that is equivalent to a tree diagram turned onto its side (with the top node implied in the left-hand margin). It presents the paragraph analyzed as highly recursive, i.e., as a nested structure of six layers. The constituency structure is traced out in the stepped part of the diagram; the component sentences are numbered and identified as to their band ranking in the left margin. The system of paragraph structure which is implied in the diagram is discussed later in this paper.

The most inclusive layer of paragraph structure is that of the whole: a narrative comment paragraph in which sentences 1-8 constitute the Thesis and sentence 9 is the Comment. The latter as an element of Band 6 is outranked by sentences 1-8, where Band 1 dominates. The second layer of the paragraph is another narrative comment paragraph of which sentences 1-7 are the Thesis and sentence 8 is the Comment. The latter is an element told out of narrative sequence and is most similar to the stuff of Band 3 (flashback). As Band 3 it is outranked by the sentences which precede it, where Band 1 dominates. The third layer of paragraph structure is a narrative simultaneous paragraph. Its Thesis is expounded by sentences 1-6, where Band 1 elements dominate; sentence 7 is called Simul (reports a simultaneous activity) and is Band 2. The next layer, the fourth, is the layer of the narrative sequence paragraph where Band 1 verbs dominate; these verbs are found in sentences 2, 3, 5, and 6. But what of sentences 1 and 4? Sentence 1 groups semantically with 2, since 1 states the Reason for 2. Furthermore, sentence 1 is clearly Band 4 and is seen to be ancillary to the Band 1 elements in sentence 2. Sentences 4 and 5 contrast what the narrator might have done had he known what was going to happen with what actually happened; the former is irrealis (Band 5) and is taken to be ancillary to sentence 5 -- which is the Thesis of a narrative contrast paragraph and is the deepest layer of embedding in this one-paragraph narrative discourse. A word about sentence 6: although its verbs are past progressive -- which would lead us to consider the sentence to be Band 2 -- it is here promoted to Band 1 by the virtue of occurrence of the punctiliar adverb **suddenly**. (For such promotion see Longacre 1989:419-420). In this paragraph, sentences 2, 3, 5, and 6 are dominant both semantically and by virtue of their rank as Band 1; other sentences have various ancillary functions on the various levels of paragraph structure. Notice how throughout this paragraph the semantics (rhetorical relations) and salience concerns intermesh and reinforce each other. But all this implies a theory of paragraph and a system of paragraphs to which we now necessarily turn.

A system of paragraph types based upon intersentential or rhetorical relations can be posited with types that are independent of the discourse types in which they occur but which take on the characteristics of the discourse types in which they occur. Internally, the component sections of a paragraph may be coordinate or one part may dominate over the other(s). In the case of an internally coordinated paragraph the parts are equally considered to be **theses**; in the case of a paragraph of dominant-ancillary structure the dominant member is the thesis. A thesis points in the direction of the mainline of the discourse type in which it occurs; indeed it will be on the mainline of its type unless it is dominated by a structure that is off the mainline of the discourse in which it occurs. In the latter case it is mainline in an embedded discourse that is not narrative. These various concerns are illustrated and further discussed below.

- (N) Comment paragraph
  - Thesis: (N) Comment paragraph
    - Thesis: (N) Simultaneous paragraph
      - Thesis: (N) Sequence paragraph
        - ST1: (N) Reason paragraph
          - S1(B4) Reason: It was too good an afternoon to stay in the house.
          - S2(B1) Thesis: I decided to take a walk.
        - ST2: (N) Sequence paragraph
          - S3(B1) ST1: As I stepped out of the door of my house I saw a dog coming down the sidewalk towards me.
          - ST2: (N) Contrast paragraph
            - S4(B5) Contrast: If I had known what was going to happen I could have taken evasive action.
            - S5 (B1) Thesis: But before I knew what was happening the dog sank his teeth into my leg.
          - S6 (B1) ST3: Suddenly I was dancing and kicking at the dog in an attempt to shake him loose from me.
      - S7 (B2) Simul: People across the street were playing a card game on the porch and were totally oblivious of what was happening to me.
    - S8 (B3) Comment (flashback): As I found out later, that dog had bitten two people previously the same day.
  - S9 (B6) Comment (evaluation): All of which goes to show the inverse of the old proverb "A barking dog never bites"

Diagram III: Indentation Diagram of the Text "How a Dog Came to Bite Me."
(N=Narrative; S=Sentence; B=Band in the Salience Scheme; ST=Sequential Thesis;
Simul=Simultaneous (non-thesis)

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A good starting assumption is that a system of paragraph types can be based on intersentential or rhetorical relations, as some prefer to call them (noticeably Mann and Thompson, 1987). The fact that my set of such relations does not precisely match that of Mann-Thompson need not deter us from so venturing. We can expect a certain variety in inventories of relations -- a variety such as has characterized different lists of cases in the days when case grammar was much to the fore. My present inventory of paragraph types is found in the second edition of *The grammar of discourse* (in press); it includes: coordinate, contrast, alternative, simultaneous, sequence, conditional, contrafactual, reason, result, warning, attestation, induction, paraphrase of several varieties, simile, exemplification, comment, quotation (where quotation formula and quotation are separated by sentence boundary), and frustration (in several varieties of one overall formulation). In addition to these I posit several varieties of interaction paragraph, including dialogue (chapter five, second edition of *The grammar of discourse*). The body of most paragraph types can be accompanied by introductory and terminating sentences. In addition, a basic paragraph type can have such stylistic variants as rhetorical question, running quote, and chiasmus (not exemplified here).

While certain of the paragraph types have variants (noticeably in regard to paraphrase paragraphs), occurrence of a given paragraph type in a given discourse type is considered to constitute a systematic variation of the basic type rather than a separate type. Consider, e.g., the paragraph in example 1.

Ex. 1 Thesis: Young John Smith came to the party.

Reason: His boss had told him to come.

In this example we are presumably in a story. The storyline reports that "Young John Smith came to the party", while in the next sentence a reason is offered for his coming.

But now consider example 2:

Ex. 2 Thesis: We urge all members of the union to come to the next meeting and cast your vote for or against going on strike.

Reason: This too important a decision for the leadership of the union or a fraction of its membership to make.

I was at one time inclined to call such examples as Ex. 2 Hortatory paragraphs consisting of an Exhortation and Motivation. But it really is unnecessary to set up a separate basic paragraph type here. We have here rather than a separate paragraph type, a paragraph of the same basic type as that found in Ex 1; the difference is due to occurrence in different discourse types. The thesis of a narrative reason paragraph will encode a storyline event and present a reason for it while the thesis of a hortatory discourse will encode a command element, however disguised, and offer a reason for the giving of the command. Example 2 is, therefore a Hortatory reason paragraph.

Consider the matter of contrast paragraphs. Examples 3, 4, 5, and 6 are examples of varieties of the contrast paragraph that are narrative (N), procedural (P), hortatory (H), and expository (E) respectively. I assume here that the basic paragraph type is the same but that there are variants conditioned by their occurrence in different discourse types. In all four examples I assume that both component sentences of the paragraph have equal salience rank in their discourse types.

Ex. 3 Thesis: I got on a bus, traveled around an hour or two, got off, and went through the municipal museum and altogether had a delightful time.

Antithesis: Tom, on the contrary, stayed home and felt sorry for himself all morning.

Ex. 4 Thesis: Here the ones who are trying to get the coffin off to burial take it up and try to get out of the front yard of the house with it.

Antithesis: The relatives of the dead one try, however, to hold it back and keep it from going to the burial place (From a Tboli text on funeral customs, D. Porter).

Ex. 5 Thesis: Concerned citizens of this city, get out and vote in the next elections and choose responsible candidates for county commissioners.

Antithesis: Those of you, however, who are unconcerned with the quality of local government can stay home (for all I care), and complain about how things go for the next two years.

Ex. 6 Thesis: We submit, with varying degrees of passivity, to a great burden of federal, state, and local taxes.

Antithesis: Our forebears of two hundred years ago rose up, however, in active resistance to throw off a tax levy that was not even a tithe of our present burden.

In notation of paragraph types in connected text I would label these paragraphs as (N) contrast, (P) contrast, (H) contrast, and (E) contrast respectively.

In labeling the component parts of paragraphs, if care is exercised in reserving the term **thesis** for the dominant member(s) of a paragraph, occurrence in the mainline of a discourse can be indicated. The term **antithesis,** used above is considered to be simply a notational variant of **thesis** appropriate to contrast paragraphs, where it is the most common situation that both members of the paragraph are mainline status. Some paragraph types, however, present a situation in which both members of the paragraph may be mainline or one member may be mainline and the other member not mainline. This is often true of simultaneous paragraphs. Thus, in example 7, one member of the paragraph is labeled thesis and the other **simultaneous thesis** (usually abbreviated to **simul thesis**).

Ex. 7 Thesis: My wife did the town that morning -- especially the tourist market and popular bazaar.

Simul thesis: Meanwhile, I spent the time in a leisurely inspection of the municipal museum.

In example 8, however, one part of a narrative simultaneous paragraph records an event while the other sentence records a simultaneous activity during which the event took place; the latter precedes the former. I label the non-main-line member **simul** rather than simultaneous thesis.

Ex. 8 Simul: She was nursing the baby in a drowsy, contented sort of way.
Thesis: She fell asleep and the baby nursed on.

In coordinate and sequence paragraphs where the body of a paragraph contains multiple theses of the same rank I label **thesis 1, thesis 2, thesis 3,** etc. in the case of the former and **sequential thesis 1, sequential thesis 2, sequential thesis 3,** etc. in the case of the latter. In analytical displays the abbreviations **Th** and **Seq Th** or even **ST** may be used . Introductory and closing elements in these and other paragraphs are off-line and lack thesis status. Examples 9 and 10 are (E) coordinate and (P) sequence respectively.

Ex. 9 Introduction: Well, here's a bit about my family:

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Th 1: My oldest daughter married a Pole and lives in New York City.

Th 2: My second daughter married a Greek and lives in Chicago.

Th 3: Jim, our oldest son, married a home town girl and lives a mile away from here.

Th 4: Our son Eric is still unmarried and lives at home.

Terminus: That should do until we get better acquainted.

Ex. 10 Introduction: I learned this recipe from a Polish rabbi's wife.

ST1: First brown some onions and green peppers in a large skillet with a minimum of grease.

ST2: Then add some diced ripe tomatoes.

ST3: Next beat up six to one dozen eggs and add them to the mixture.

ST4: Salt and pepper to taste and cook slowly (without stirring) over a low fire.

ST5: When it is cooked through loosen with a spatula and turn upside down on a platter.

Terminus: Depending on the number of eggs used, and figuring two eggs per person, this recipe will serve three to six people a king-sized breakfast.

The claim was made above that by labeling the dominant element of a paragraph thesis, occurrence of that element on the mainline of its discourse is indicated. This holds for both embedded and embedding or **matrix** discourses. It is important to note, however, that the thesis in an embedded discourse will not necessarily be mainline in the matrix discourse as well. The latter will hold if and only if the embedded discourse and the matrix discourse are of the same type, e.g., narrative within narrative. It will not even hold if the embedded thesis occurs in a narrative which is backset as a flashback from the mainline of the matrix thesis. A narrative may have a stage in which occurs an expository paragraph. The thesis of such an expository paragraph is mainline in the embedded one-paragraph discourse but is not mainline in the matrix discourse. No cross-over from discourse type to discourse type is permitted without loss of mainline status in the matrix discourse.

For example, the introduction to the procedural paragraph in example 10 could be expanded to "I learned this recipe from a Polish rabbi's wife. She had heard that we like to experiment with egg dishes." We would have then a short embedded one-paragraph narrative discourse embedded within a procedural one-paragraph discourse. In the embedded paragraph the first sentence would be dominant and would be the thesis; the second sentence is non-dominant since it occurs in band three (flashback) of the narrative cline given in Diagram 1. But the thesis of this embedded narrative paragraph is not mainline in the matrix procedural paragraph. This is accounted structurally by making the embedded paragraph introduction to the procedural paragraph as is done with the first sentence in Ex. 10. Introduction is, by definition, not a mainline element.

A rule can be formulated: *Theses are mainline in their discourse types but if they occur within an embedded discourse they are not mainline in the matrix discourse unless the embedded and matrix discourse are of the same discourse types.* This means that by constructing a large tree diagram (or its stepped diagram equivalent) we can begin construction from the bottom up with modules (paragraphs) of various discourse types which may or may not be the same as that of the matrix discourse. Theses in lower-levels of the diagram will persist on as mainline elements in the higher levels if there is homogeneity of type; otherwise lower-level theses do not carry through to become theses on the highest level. That is, in terms of tree structure, a thesis dominated by thesis in the higher unit finds its way to the storyline of the main story provided there is no change of discourse type. One can then find his way in such a diagram from lower-level theses to the mainline of the whole discourse subject only to this qualification.

In summary, this paper is meant to suggest an overall synthesis of salience, local dominance, paragraph structure, and discourse movement, all of which, to borrow an apt term from Ricoeur (1985), work together to contribute to the **followability** of a discourse.

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Requiem for LACUS 1995

Robert E. Longacre

The conjurer's conclave
dissolves.
We're done
– for now –
with weaving words about words,
with tables and chi-squares,
with nets and forulas,
abracadabras,
glossalalic utterances,
and esoteric spells.

We've conjured up the ghosts of
languages long dead
and drunk from wells at the world's end,
defying time and space on magic carpets.

We've brought our jinns from their bottles,
heard their willing "Here, Master"
and packed them back into their jars.

What have we done?
"A little new of the never old,
a little told of the never told,
added act of the never done."
[Pace, Thompson!]

Poets and linguists,
linguists and poets;
"The grammar of poetry
and the poetry of grammar."
[Requiescat in pace, Jacobson]

"Oh, the night has been long,
ditto, ditto my song
– And, thank goodness, they're both of them **over**."
[Has it all been an evening at the comic opera?]

Are we wizards
or ham-actors?
Better not say!
Let Goethe have the last word:
"Wisdom weaveth itself in the loom of the fool."

At all events, like a blob of mercury
dropped on a platter,
we disperse
[Quicksilver is well named].

KYRIE ELEISON.

INAUGURAL LECTURE

AGREEMENT LANGUAGES

Winfred P. Lehmann
The University of Texas at Austin

It is a great pleasure to address the Linguistic Association of Canada and the United States. I have long admired the approach of the association in examining language as a part of human culture and in relation to the speaker and hearer. In this way you are following the approach exemplified by William Dwight Whitney in his book: *The Life and Growth of Language*, and after him Edward Sapir, who asserted in an article entitled 'The Status of Linguistics as a Science': 'Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society. ... The 'real world' is to a large extent unconsciously built up on the language habits of the group' (1929:209). Following these exemplary linguists, your publications are focused on achieving an accurate understanding of language and its place in culture rather than on production of frameworks that have been labeled theories.

The attention to so-called theory over the past half century in the humanities and social sciences will be one of the topics of wonderment for future historians of science, especially because so many of the proponents merely repeat the past. We may recall that Brugmann in the preface to the new journal founded with him by Osthoff in 1878 criticized the linguistics of his time and earlier on the grounds that 'people observe language only on paper and resolve everything into terminology, systems of rules, and grammatical formalism, believing that they have captured the essence of the phenomena when they have devised a name for them' (Lehmann ed. 1967:202). The return in this supposedly enlightened era to such attention to language, and the more restricted attention to the 'ideal language of an ideal speaker in an ideal society,' will be considered one of the remarkable features of linguistics in this century.

For Brugmann and many later linguists, understanding of language results from knowledge of characteristic representatives of the many that are in use, and on an accurate position regarding it, as by noting that it has ' a mental and a physical' aspect (Lehmann ed. 1967:198). On the basis of extensive knowledge of languages, largely to be sure Indo-European, they produced descriptions that have not been surpassed, as demonstrated by works like Brugmann's Greek grammar revised by Schwyzer, Leumann's Latin grammar, Jespersen's English grammar, and so on. Moreover, they based their work on theory, though applying it in making their contributions rather than proposing a so-called theory and then supporting it with a few examples. Attention to their contributions demonstrates that the adequacy of linguistic generalizations, or if you wish, explanatory adequacy, depends crucially on such observation and description

Thanks to the work of linguists on indigenous languages, we are in a period of massive attention to describing many languages that have been previously undocumented. Admirable individuals have devoted numerous years acquiring such languages after undergoing preliminary training, and then have documented them. Much as the enlarged information on the universe provided by current astronomy has led to improved theoretical formulations on its development and current situation, so the knowledge of these languages has expanded the information on which we rely to propose and test our theoretical conclusions about language in general.

Previous generalizations, or universals, that have been made on the basis of knowledge of a small group of languages now must be modified, or discarded. Among these is the assumption that languages employ government and rely on transitivity among devices to demark clauses and sentences. The current investigation of indigenous languages has disclosed many that rely instead on agreement. The difference between the two types is so characteristic that we must now speak of Government Languages and Agreement Languages. I view the description and understanding of Agreement Languages as the most important contribution to our field in this century.

It should be a matter of great pleasure to the Association that this contribution has been made in great part by your members, or associates of your members. Linguists of the Summer Institute are among those who have given us the fullest descriptions of such languages, especially those in South America. Treatments by Cheryl Jensen, Aryon Rodrigues, and Lucy Seki on the Tupí-Guaraní family have been especially revealing (Payne, ed. 1990). They and others have provided the descriptions that inform us of the characteristics of Agreement languages, notably, that these languages differ crucially from the languages that have been cited to support the numerous theories that have proliferated in the previous generation and are being continued today.

Before we came to know Agreement languages, linguists assumed that government is a fundamental feature in language. Paul in his long-influential book insists that some entities in language govern others (1920:151f.). For Bloomfield and his followers government is a type of selection, which in turn is one of four taxemes by which 'the free forms ... of a language appear in larger free forms' (1933:184). For Chomsky and his followers it was for a time a primary device with binding. Knowing now that there are languages lacking government and transitivity, we must agree that the generalizations about language in our handbooks are inadequate.

We then have another demonstration of the importance of knowing languages. In some respects, linguistics of the past century and a half resembles that of the Middle Ages in western culture. At that time Latin was the measure of all languages. The Romance and the Germanic languages like others were described in accordance with the grammatical patterns of Latin. While this approach was gradually eliminated from our handbooks, if not as soon from pedagogical works, it was replaced by shifting first to a wider format based on the Indo-European languages and then more recently to a format based on English. It is curious that in an influential work like Chomsky's of 1965 only two examples to support generalizations are given from languages other than English, the German word *Bruder* (1965:173), and 'the perfectly analogous French example' corresponding to 'these men are more clever than Mary.' Apparently languages as well as 'sincerity may frighten the boy.'

The gradual shift away from the use of Latin as pattern for all languages is ascribed in great part to the discovery of Sanskrit. But we may overlook the effect of works like Adelung's *Mithradates* (1806-16). In it he and his successor provided descriptive sketches with well-chosen illustrations of five hundred languages that had been investigated during the previous centuries. Nothing similar has been produced since that time. Since *Mithridates* is poorly accessible I included a translation of its characterization of Turkish in *Syntactic Typology* (1981:27-29). The constructions exemplified by Adelung include crucial patterns among those treated by Greenberg (1963), such as the type of adposition and the method of comparison of inequality. We credit Adelung for bringing together the contributions of previous centuries, but his great shortcoming, which was maintained throughout the nineteenth century and into our own, was his failure to relate such constructions among one another. That is, they failed to regard language as a structure, or as Meillet put it 'a system in which all the parts are related' (1937: ix). To my knowledge, the first linguist to propose an element or construction that is central in the system, an is then used for proposing implicational relationships, is *Pater* Wilhelm Schmidt (1926). In his view, that central element is the genitive and its relationship to the entity it modifies. His position is then comparable with that of the linguists today who view languages as left or right branching. By either position, nouns are regarded as heads in some constructions, verbs in others. A view that I and others find more accurate classifies languages by noting the position of the verb with regard to the elements governed, that is, to assume two classes: VO and OV languages.

Classification into VO and OV languages is based on syntactic patterning. The grouping for which the labels Government and Agreement languages apply is based on classification that also includes attention to the meanings of words. For this reason Klimov refers to it as 'content-oriented typology' or 'contentive typology' (1983:327). As we note in greater detail below, in content-oriented typology not only phonological and morphological patterning coupled with syntactic constructions are taken into consideration, but also the meanings of elements involved in such patterning. Descriptions of Accusative languages like English refer to meaning classes such as concrete and abstract nouns. Descriptions of Agreement languages must lay great weight on semantic classes based on reference to animate vs. inanimate items, and so on.

Government Languages are well-known, and have made up the chief area of linguistic concern, on the one hand the Nominative-Accusative, on the other the Ergative. Our primary concern here, Agreement languages also consist of two groups, Active and Class. Somewhat different labels would be useful; the hyphenated Nominative-Accusative is troublesome because individuals tend to use either element, leading to lack of uniformity. And the term Class is identical to the general term in what has generally been known as typology. And while the term 'active' is used of a verb conjugation in such languages as well as for the type, it is so well established that we continue to employ it. On the other hand, typology would be better referred to as cladistics, in keeping with the terminology of other sciences like biology. The term 'typology' is misleading through the suggestion that linguists seek out specific types; cladistics identifies classes without crediting any hierarchy.

Among the pertinent devices of Government languages is the construction of sentences by means of specific relationships between subjects and objects with regard to verbs by which the verb exercises control, or in linguistic terminology, government. A comparable relationship is found between adpositions and nouns and in the comparison of inequality construction. The two sub-types, accusative and ergative differ slightly in the alignment of cases found as subjects and objects. Because the characteristics of both types are well-known, we need not deal further with them here.

The characteristics and devices of Agreement languages on the other hand have received less attention. In contrast to the binding force of Government languages, the two sub-types of Agreement languages align subjects and verbs in accordance with classes of nouns and of verbs that agree by a specific feature of meaning; in the Active languages the feature is either Animate, also referred to as Active, or

Inanimate, also referred to as Stative. While for many nouns and verbs these classes are natural, classification results from the point of view of members of the society in which the language is used. For example, the nouns for internal organs like the liver typically fall into the Inanimate or Stative class; those for external organs like hands into the Animate or Active class. As another complexity, some items or processes may be viewed as either activities or states, e.g. fire and water, lie (down) and stand (up). Besides the two classes of nouns and verbs, Agreement languages include a large class of particles that indicate relationships of the elements in sentences. Inflection is relatively poor.

Sentences are formed by aligning Active nouns with Active verbs and similarly Stative nouns with Stative verbs. The so-called objects in such languages, of which there may be two in a clause, may be considered explanatory. The nearest object indicates the direction of an action, as in 'runs to the river.' The distant object indicates a circumstance, much like adverbial elements in Government languages (Klimov 1977, 1983a, 1983b). The terms subject and object might better have been avoided, because the relationships between nouns and verbs differ considerably from those of Government languages; but they are installed and accordingly we maintain them.

The verbal system has two principal conjugations, the active and the stative. The stative conjugation includes few distinctive forms. Moreover, many stative verbs are comparable with the adjectives of Government languages; accordingly Active languages have few, if any, adjectives as a distinctive class. They also include a third and smaller set of verbs that refer to involuntary activities and states, such as statements on the weather or one's health. In form these correspond to third person singulars. As another feature of their verbal system, they lack a verb for 'have,' in keeping with the absence of marking for transitivity. The meaning is expressed instead by a pattern such as 'there is to me...'

Like the verbal system, the nominal system is made up of animate or active nouns and inanimates or statives. Inflection is especially poor for inanimate nouns; distinctive inflected forms in the inanimate declension may be found only in the singular. Further, reflexive and possessive pronouns may be absent. Instead of reflexive pronouns the verb system may include an inflection like the Indo-European middle where reference to the speaker or the subject is implicit. Affixes may correspond to pronouns, which may also be expressed by means of particles; pronouns may distinguish between inclusive and exclusive reference. They may also indicate different relationships with active as opposed to stative verbs.

I summarize these characteristics before dealing with some of their implications. The gradual awareness of such languages is also of interest. But I dwell principally on knowledge of them here for clarification of languages in general, such as the Indo-European, especially in the early period, also with implications for reconstructing earlier relationships, and thereupon on the development of natural language as it has been employed in human society.

At the beginning of this century the Dutch linguist, Uhlenbeck, published a short article entitled 'agent and patient in the case system of the Indo-European languages' (1901). The article was generally overlooked. In 1916 he published two short monographs on somewhat the same theme. Their titles in translation are as follows: 'the passive character of the transitive verb and of the active verb in languages of North America' and 'the identifying character of possessive inflection in languages of North America.''' These monographs came to the attention of Sapir, who reviewed the first in the *International Journal of American Linguistics* in 1917. Sapir there cited the characteristics identified by Uhlenbeck, and thereupon labeled the languages 'Active.' Oddly, there was little further discussion. Even in his book *Language,* where Sapir treats typology at great length, there is no mention of the special type of language that he had labeled Active. Subsequent grammars and descriptions of Active languages that were published include tantalizing information on them, but treat them much like Government languages.

We may cite as example the treatment of Tunica. To her great credit, Mary Haas preserved information on Tunica through her work with the last speaker. In her grammar she distinguishes three classes of verbs: auxiliary, active, and static (1940: 40ff.). Her description came to the attention of Benveniste, who made use of it in his article on functions of 'to be' and 'to have.' For him the Tunica 'class of verbs called static' provided a parallel for constructions in the Indo-European languages like the modal auxiliaries in the Germanic languages and the Latin *mihi est* construction, all of which Benveniste cites as supporting his view that 'have' is a '*verb of state*.' What he found notable is that, like the Latin expression where 'I have' corresponds to 'to me is...,' the Tunica verb indicates a 'state of having, of that to which something is' (1971:172). While he cites the Tunica pattern in support of his view, he does not refer to Tunica as an Active language.

Harry Hoijer is another distinguished Americanist who dealt with Active languages, among them Navaho in an article entitled 'Cultural Implications of some Navaho Linguistic Categories.' Confining our attention to a few details of his highly interesting treatment of the language, we may note that he identified 'three major form classes...: particles, nouns, and verbs.' Moreover, 'verb bases fall into two major categories, neuter and active. Neuter bases are conjugated for person and number in only one paradigm ..., but active bases have seven required paradigms' (1951:112-13.) Hoijer then goes on to discuss 'the precise relationship, in semantic terms, between the subjects and goals of a Navaho verb on the one hand and the verb base on the other' (118). The description is far too complex for summary here. It leaves little doubt, through statements like 'active transitive verbs introduce the nation of agency,' that Navaho belongs to the languages we now label Active.

Americanists have produced a large number of grammars of Active languages, such as the Iroquoian, in which some of the characteristic constructions are recognized, but the language as a whole is not adequately presented. It would be highly beneficial if the languages were now reexamined and new grammars were produced. We look forward also to extensive grammars of Active languages that are being investigated in other areas, such as South America. Lucy Seki has promised a grammar of Kamiurá, but to my knowledge it has not appeared.

After discovering that not all languages are like English, that a distinctly different type makes use of agreement rather than government in forming sentences, we may ask what are the implications besides rewriting our theoretical handbooks, adjusting the conclusions of articles that have appeared in our learned journals, and producing improved grammars. As a further benefit, we can now explain some of the characteristics of well-known languages that have long been puzzling. Moreover, we may learn once again that explanation is not carried out by fashioning hypotheses about the control of language by activities that we fancy in the brain. The so-called cognitive linguists would do well to consult some of the recent findings of research on the brain, if only the reports of Hanna and Antonio Damasio as sketched in the July 17 issue of TIME, or preferably in his book entitled: *Descartes' Error*. Instead of seeking to achieve explanatory adequacy by referring to imagined workings of the brain, we apply the time-honored procedure, that is, we determine earlier forms.

The greatest advances in such application of our new knowledge have been made in Indo-European linguistics. In 1984 Gamkrelidze and Ivanov identified the earlier stage of Proto-Indo-European as an Active language in their book: *Indo-European and the Indo-Europeans*. Published in Russian, the book was not widely accessible, but it now is, because it has appeared in English (Berlin, 1995). Earlier, some linguists had come to the same position as Gamkrelidze and Ivanov, among them K. H. Schmidt; but they dealt with it in articles that did not gain wide attention. Here I cite only some of the explanations resulting from that identification in order to demonstrate the importance of our discovery of Agreement languages. I deal with them more fully elsewhere (1993).

One of the problems cited in handbooks of Indo-European is the existence of two words for common items and processes, such as fire, water, lie, stand. For example, Latin among other Indo-European dialects has *ignis* in contrast with Greek *pûr*, the cognate of our word. Similarly, Greek has the word *keîmai*, in contrast with Old Bulgarian *ležati*, the cognate of our word. Meillet accounted for such doublets on the grounds that primitive languages often have several words for common items. The explanation always seemed inadequate. We now account for these doublets by proposing that in the early Active stage of Indo-European two words were in used for items and processes that may be viewed either as actions or states. Cultural and morphological data support this assumption. The Sanskrit cognate of *ignis* is *Agni-*, name of the god of fire, clearly the one of the pair for fire indicating an animate entity; this conclusion is supported by noting that the reflexes of the inanimate noun, such as the German *das Feuer*, fell into the neuter gender when Proto-Indo-European shifted to accusative structure. When we survey reflexes of verbs expressed in doublets, we find that Greek *keîmai* and its cognates are inflected in the middle, indicating that they mean 'to be in a state of lying,' while the cognates of *lie* imply the action of lying down.' Moreover, in the Indo-European languages, the words for external organs like the hand are inflected in the feminine gender, while those for organs like the liver are neuter, in accordance with the treatment of the supposedly inert internal organs. These examples may indicate that previous problems in the lexicon may now be explained by accounting for them as residues of the Active stage of Indo-European that I label Pre-Indo-European.

When we examine inflection in the early dialects, we find categories in which it is defective. In the nominal declension, Hittite has distinctive plural forms for only the nominative and the accusative. Even Sanskrit with its copious inflection fails to have distinctive forms for some plural cases. And some dialects differ in the inflectional element in the plural, such as Germanic and Baltic with suffixes in *-m-* in contrast with those in *-b-* in Latin and Sanskrit; the different elements suggest that these case forms were added later in the plural. We now account for such formations in the plural inflection of nouns by noting that Active languages in general have fewer inflections in the plural than they have in the singular. When Pre-Indo-European became an Accusative language, the nominal declension was filled out in varying degrees.

Similarly, when we examine verbal inflection in the early Indo-European dialects, we find few distinctive forms in the middle as opposed to the active voice. We now account for this situation by noting that the middle is a reflex of the Pre-Indo-European Stative inflection. In Active languages the stative conjugation has relatively few forms, and those are chiefly in the singular. Accordingly, like lexical characteristics, problems in inflectional morphology have been clarified by the assumption of Pre-Indo-European as an Active language.

A more complex problem was amplified on the discovery of Hittite. Rather than a system of verbal inflection like that of Greek or Sanskrit, Hittite has a relatively simple system consisting of two conjugations; these may be labeled by the first singular endings, the *-mi* and the *-hi* conjugations. The *-mi* ending corresponds to that found in the present system of Sanskrit, and also in a number of frequent verbs in Greek; the *-hi* ending on the other hand seemed to have no exact cognate. In time, however, as Hittite phonology came to be better understood, it was clear that the first singular ending *-hi* as well as the endings for the second and third person singular of this inflection correspond to the endings in the Sanskrit and Greek perfect singular. Moreover, these are the only distinctive endings in the perfect; the others are taken from the present inflection. The use of the perfect forms of **weyd-* 'see' with the meaning 'know' is cited in all the handbooks. They indicate a state resulting from an action that has been completed; in this way Sanskrit *véda*, Greek *oîda*, Gothic *wait*, earlier English *wot* all mean 'I know,' rather than 'I have seen.' The eminent Hittite specialist, Erich Neu, came to the conclusion on the basis of Hittite alone that the two Hittite conjugations should be termed Aktivum and Perfektum; we now account for them as reflexes of the Pre-Indo-European Active and Stative conjugations (1968). In the other dialects the Active has developed into the present-aorist conjugation, the Stative into the perfect and the middle.

One of the clearest residues of the earlier structure is found in the expression of 'have' in the later dialects. Because Active languages lack transitivity, they do not include a verb like English *have* that takes a direct object. Instead, they have constructions made of the verb BE with the item possessed as subject and the possessor in the dative. Everyone who has taken a few months of Latin has learned the *mihi est* construction. There are similar constructions in other dialects, Indic, Slavic, and so on. As the languages became increasingly Accusative, however, they introduced transitive verbs to express 'have.' When we examine these words in the dialects, we find that they differ, e.g. Greek *ékhein*, Latin *habere*, Gothic *haban*. The different items suggest that the words for 'have' were introduced independently in each dialect. Further, that some Active characteristics were eliminated only late; others, such as impersonal expressions concerning weather or psychological conditions are maintained in part to this day in some of the Indo-European dialects.

The explanation of these residues in the early dialects, and in the Proto-Indo-European that has been reconstructed, leaves us with little doubt that the earlier form of Proto-Indo-European was an Active language. Such residues have been identified, but poorly accounted for. As an example that I have cited before, Prokosch in his grammar of the

Germanic languages states that 'the occurrence of labial stems in both the 1st and 2nd persons plural can hardly be a coincidence' (1939:282). He cites as possible explanation the 'inclusive and the exclusive forms' in long list of languages. Such references indeed provide evidence for inclusive and exclusive pronouns, but no grounds for assuming them in Germanic and the other Indo-European languages. When, however, we learn that Pre-Indo-European was an Active language, knowing that these typically include such pronouns, we readily accept the explanation. Besides allowing explanation of such residues, the reconstruction of the Active stage, provides a more likely basis for comparison with other languages before 4000 B.C., the final date we may assume for Pre-Indo-European on the basis of correlations between archeological discoveries relating to domestication of the horse and the accompanying terminology for this innovation.

Among such attention to the early period we may now deal more realistically than have earlier linguists with possible relationships between Pre-Indo-European and other reconstructed languages, such as early Afro-Asiatic. We can also be more realistic about the reconstruction of the Nostratic super-family.

Examining first Proto-Semitic, we note that it too has Active characteristics. Like Active languages, it has little inflection in the nominal system; Brockelmann assumes three central cases, nominative, adnominal (often called the genitive), and the adverbial (generally called the accusative), adding also a locative (1913/1961: 459-60). Instead of reflexive pronouns it represents reflexivization through a verb form. It includes few adjectives. In the verbal system the basic distinction is 'between the categories of "action'" and "state'" (Diakonoff 1988:85). Instead of a verb for 'have,' it includes constructions in which the preposition *l-* indicates the possessor, similar in this way to the Indo-European dative. I have treated these and others more fully elsewhere (to appear). The comparable characteristics between Pre-Indo-European and Proto-Semitic supplement Professor Levin's conclusion that 'the forerunner of Hebrew--perhaps of other northern Semitic languages too ...--seems to have been in contact with the remote forerunners of Sanskrit and Greek as early as the age when the genesis of these two languages was joint' (1971:717). Those conclusions were based on morphological criteria; we look forward to his forthcoming book for greater information on the relationship.

Our analysis and description may indeed define the early stages of Indo-European and Afro-Asiatic as Active. But the comparable features may have been genealogical or may have resulted from areal contact. Closer scrutiny of the common features is now essential if we seek to identify the basis of their similarity. The solution may also be assisted in part by examining evidence on the homelands of the two families. In his book Diakonoff of 1988 proposed that the Afro-Asiatic homeland was in the region of the Sahara, and that the speakers of the Semitic languages, leaving that area, and 'passing over the Suez isthmus, spread throughout the Middle East' (1988:25). He has now proposed in a letter of 19 October 1994 that 'their original center was Natuf in Palestine.' For Pre-Indo-European he assumes the original center to be the area of Çatal hüyük in central Anatolia, giving as date for these locations of the two sets of speakers as the VIIIth millennium B.C. He then concludes that they belonged 'to the same linguistic super-family,' the Nostratic. The same position is proposed by Bomhard in a book that exists in manuscript form. By this hypothesis the Active characteristics in the two early languages are then the result of maintenance from a common earlier ancestor.

Leaving these conclusions based on the identification of Pre-Indo-European and Proto-Afro-Asiatic as Active languages in favor of more general considerations, we may turn our attention to the results of examining languages by content-oriented characteristics. We recall that there are four major types: Class, Active, Ergative, Accusative. Comparing the characteristics of each, Klimov has found that the Accusative may include Ergative characteristics, and these may include Active characteristics, and these in turn Class characteristics. On the basis of such residues, he concludes that natural language has evolved and that the earliest type we know is Class. Besides citing a number of monographs which support this view, he points out that the situation is never reversed; among other arguments in favor of the hypothesis of evolution, Class languages do not include characteristics of Accusative languages. If we accept the hypothesis that languages evolve along specific lines, the comparable features of Pre-Indo-European, Pre-Semitic, and the other Nostratic languages may not at all be the result of genealogical relationship or areal influences but rather representative elements and constructions of the stage of the given language in the course of its evolution. Or following Sapir, we may assume that the type of language parallels the culture of its speakers.

Before examining these hypotheses we may note that before Active languages came to be known, linguists dealing with early stages of Indo-European considered them Ergative, as some still do. In an article entitled 'Problem of Ergativity in Indo-European,' Matsumoto for example states that 'the theory of Indo-European ergativity should not be rejected'; but he also finds 'characteristics very close to those of the so-called 'active' type languages' (1993:303). Reading the article one concludes that the author became aware of the evidence for active structure, but is still reluctant to assume it. Somewhat similarly, Lyons in his book on theoretical linguistics applies the term 'ideal ergative' for Active languages (1971:356-57). These references may indicate that the shift from Active to Ergative and then to Accusative languages was perceived; but until the descriptions that were published by linguists who dealt with clearly identifiable Active languages became known, understanding of the Agreement languages, and of the relationship between the four classes was unclear.

The lag in perceiving the early structure of Indo-European, not to mention language families that have been less thoroughly treated, illustrates one of the most important tasks in contemporary linguistics: provision of fuller descriptions of Class and Active languages. To my knowledge, the best treatment of a Class language is that by Aikhenvald in her article: 'Classifiers in Tariana.' The article of almost sixty pages is far too extensive to be summarized here. I simply cite a few of her descriptive statements. 'Tariana has gender agreement in verb-argument constructions, and classifier agreement in head-modifier constructions. It has three subtypes of classifiers: numeral classifiers, demonstrative classifiers, and verb-incorporated, concordial, and genitive classifiers' (1994:407). The agreement of verbs and arguments by the feature that Aikhenvald refers to as gender is more precisely marked than is agreement in Active languages, where it is arranged by semantic classes. In Tariana the gender system consists of feminine vs. nonfeminine opposition, which is supplemented by 'cross-referencing prefixes, and personal pronouns coding participants' (449). The inanimate classifiers refer to form, whether long, round, etc., to shape, such as limited space, leaf-like, etc. All in all there are thirty inanimate classifiers. It may be clear that phrases and clauses are tightly interrelated by classes.

I may add, however, that Aikhenvald is hesitant about assuming Klimov's progression of languages from Class to Accusative. A student of Ivanov's in Moscow and of Diakonoff's in St. Petersburg, she is fully informed of content-oriented typology. But her attention to classifiers in other languages may have swayed her not to consider Tariana as different in type from such languages as Chinese that make great use of numeral classifiers. The description with many examples that she has given of Tariana is available for anyone concerned with the hypothesis of evolution of language. Fortunately we are being given descriptions of other Agreement languages, like those in the volumes edited by Derbyshire and Pullum, and by Payne, with which we may test the hypothesis of language evolution as well as that of the relationship between language and culture.

Among problems in dealing with Agreement languages is the influence of other languages on the small social groups that maintain them, not least through the European colonizers. Many speakers of the indigenous languages in South America have been in contact with speakers of other languages, including Portuguese. Details may be consulted in the grammars. For example, Abbott assumes that Macushi has changed from OVS as basic order to SOV through the influence of

Portuguese (1991:25). In Paumarí, intransitive clauses have VS order but transitive clauses have SVO order; the language has been strongly influenced by Portuguese, so that currently 'the Paumarí speak a complete mixture of Paumarí and Portuguese' (Chapman and Derbyshire 1991:161ff.). Some of the languages on the other hand have remained isolated, so that we may assume little influence from others. Whether they have undergone changes or remained unmodified, I would like to suggest that these languages provide us with a laboratory for explaining changes in language. Observing their modifications, we may be able to interpret better the patterning that we find in early languages like Indo-European and Afro-Asiatic.

I have long proposed that when languages are adopted by large numbers of new speakers they are modified syntactically to SVO structure; Modern Arabic is an excellent example, as with its introduction of the word for 'self, soul' as a reflexive marker to replace verbal expression of reflexivization. The same change took place in the Indo-European languages, as the forms like *myself, herself* were installed in one Germanic language, forms like *mich*, and the newly created *sich* in another. While we have little information on the earlier changes, as of Pre-Indo-European Active structure to Accusative, by observing modifications in process we will be able better to understand how comparable shifts took place in prehistoric times.

The descriptions of the Amazonian languages also provide welcome information on cultural changes, including their possible relation to language changes, a topic that has long been disregarded. Recalling Sapir's views, one of the most important Americanists, Harry Hoijer, as noted above, suggested 'a functional interrelationship between socially patterned habits of speaking and thinking and other socially patterned habits' (1951:120), providing remarkable evidence from Navaho for his view. As one of his supports for the proposal Hoijer determined 'three broad speech patterns' which illustrate that the 'Navaho [language] emphasizes movement and specifies the nature, direction and status of such movement in considerable detail.' For this set of patterns he found a parallel 'in almost every aspect of Navaho culture taken as a whole ... the Navaho [as] a wandering nomadic folk, ... [their] gods and culture heroes move restlessly from one holy place to the next' (117). If such parallels are documented between a specific language and the culture of its speakers, we may inquire whether the type of language used by a social group is also to some extent related to the culture of its speakers.

Among students of culture in its development, or phrased differently 'the human career,' Robert Redfield has attempted to characterize 'the world view of precivilized man.' The three features he identifies are as follows: 'precivilized man [recognizes] the unitary character of the cosmos'; ... [he does not] 'set out to 'control, or master or exploit' [it]'; his 'attitude toward the Not-Man is one of mutuality' (1953:103ff.). It is scarcely necessary to cite Redfield's characterization of the subsequent 'world view,' by which 'man ...comes to confront nature as something with physical qualities only, upon which he may work his will.' And possibly because he was addressing a live audience, Redfield concludes: 'To the early American, nature was God's provision for man's exploitation.'

If like Redfield we find control of the world around us a principal characterization of civilization and if like Hoijer we find 'the world of social reality ... reflected in ... language,' we may suggest that an attitude of mutuality towards that social world may be reflected by a type of language that associates elements, actions and states in the world by means of agreement. By contrast, an attitude of control may be reflected by language that makes great use of government and transitivity. We know that the languages of the Indo-European and the Afro-Asiatic families are modified from Agreement to Government type, and begin to incorporate transitivity when their speakers achieve greater control of their 'social reality,' as by domesticating animals and cultivating crops rather than relying on hunting and gathering what they might find. For the early period, these suggestions on the interrelationship between language and culture may be considered imaginative or speculative. But the opportunity is now at hand to observe the changes in culture as Agreement languages are modified or replaced by Government languages; Hoijer's suggestion of functional interrelationships might then be tested.

Yet if we set only lesser goals, such as obtaining further information about Agreement languages from the admirable linguists who are documenting them, linguistics will be greatly enriched. Through demonstration of the wide diversity in languages and differences from the well-known languages of Europe, our field may once again be of interest to specialists in other fields and to the public in general, which for decades now has viewed linguistics as a technical topic or totally disregarded it. Linguistic meetings and publications formerly attracted a wider audience than the members of societies who may attend them largely for non-intellectual professional reasons. With greater interest in language and its relation to culture, support for research, whether from private foundations or government agencies, may rise above the pitiful current levels. Brugmann's solution to the deficiencies in linguistics of his time is implicit in his statement that 'Languages have been indeed investigated..., but the human speaker much too little' (Lehmann ed. 1967:198); we would do well to apply the same remedy.

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INVITED LECTURE

HOW GRAMMATICAL RELATIONS ARE DETERMINED

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Introduction

This paper is divided into two parts. In the first part, **determinacy** is defined and illustrated through the **theory of true narrative representations (TNR-theory)**. TNRs are signs that are both true and part of a story unfolding over time. The determinacy of grammatical relations is shown to reside exclusively in the spatio-temporal relations obtaining between materially grounded arguments and abstractions drawn from them. Therefore, the time-honored 'isolated sentence' is conclusively shown to be an inadequate source of information about grammatical relations, not for lack of verbal context, but because of its indeterminacy with respect to its arguments. In Part 2, TNR-theory is closely articulated with a **theory of abstraction (A-theory)**. The latter is a theory of language acquisition in particular and of learning and intelligence in general.

The Peircean method of 'exact' or 'mathematicized' logic is followed. It involves beginning with that which cannot be reasonably doubted and adding nothing to it which has not first been proved necessary. Among the propositions proved in Part 1 are that: (1) the material content of a sign does not originate in the sign itself (nor in the sign-user) but in the logical object of the sign from which that content is abstracted by the sign-user(s)—a process fleshed out in Part 2; (2) the surface-form of every sign is a product of some sign-user (or community of them)—i.e., not at all of the sign itself nor of its object; (3) the determination of any object by any sign-user (or community) flows from the significance of the sign as construed, not from any property exclusively contained in the object; and (4) any construal of any grammatical relation whatever depends (a) *primarily* on one or more grounded arguments of that relation, (b) *secondarily* on the agentive construal of the relation, and (c) *tertiarily* on the significance of the sign as informed by its logical object. Even a predication which purports to be **monadic** (i.e., a predication with just one argument) must covertly involve an act of construal of that argument. **Dyadic** and higher **polyadic** relations (those with two or more arguments, respectively) similarly depend on construal of their particular arguments to provide content to the relations themselves. Such construals and systems of inference (detailed in Part 2) are proved to depend on well-equilibrated TNRs. Thus, theories of grammar (universal and particular) require grounding in TNRs and 'isolated sentences' or other segments of discourse excised from spatio-temporal contexts are proved unsatisfactory owing to their indeterminacy. GB theory, cognitive grammar, and functional typology, however, explicitly have relied on indeterminate **fictions** for devising and testing their hypotheses about grammatical relations.

The theory expounded in Part 2, A-theory, consists of three distinct but interrelated parts. Collectively they are about language acquisition (**L-theory** or L), grammatical development (**G-theory** or G), and discursive inference (**D-theory** or D). The whole conception amounts to a theory of the formative character of intelligence. As in the development of TNR-theory, the Peircean method of reasoning is followed. Three abstractive processes are extended to the problem of building up and applying grammar in discourse: (a) **discrimination**—as seen in perception or in the examination of an actual conception, i.e., a pragmatic operation; (b) **prescission**—as involved in the relative motions of agents and objects and in the construal of signs especially relative to space and time as well as in respect to memory and expectation, i.e., a syntactic operation; and (c) **hypostasis**—regarding the content of signs as abstract logical objects, i.e., a semantic operation transcending space and time. From A-theory in its three parts, 30 true narrative sign-systems are generated and distinguished—10 each from L, G, and D. Building on TNR-theory, A-theory shows explicitly how the grammar underlying the universe of meaningful signs is built up. Whereas TNR-theory is about the necessary *material spatio-temporal basis of grammar* and signs in general, A-theory shows explicitly how that basis is developed in discursive inferences.

Part 1: The Theory of True Narrative Representations

The key to all that follows is the idea of **determinacy** as it is construed in such linguistic forms as *this* (or *these*), *that* (or *those*), or *the*, *here* (*there*), *now* (*then*), and so on. To determine a sign is to make out its meaning. First, some background is offered to show the linguistic basis of the discussion and then the argument is developed along the lines of the 'exact logic' of C. S. Peirce [1839-1914]. The method of argumentation is both the deduction and proof of the method itself. The fact that such a method is possible is evidenced by every normal child who develops from an inauspicious point of departure (wherever and whenever he or she happens to be born) a satisfactory internal theory of the grammar of one or more languages. While the method of argumentation throughout the discussion is necessary (logico-mathematical) reasoning, its empirical consequences are crucial, as I will show, to linguistic theories of grammar.

Since the Chomskyan revolution, dated from about 1957 or so, linguistic theory has commonly appealed to sentences isolated from particular contexts of experience as its primary basis for testing hypotheses about grammar and especially for determining the subtleties of syntactic relations. Without singling out particular cases, it should be noted nonetheless that some linguists, especially in more recent years, have used longer stretches of discourse and/or better grounded cases for their data, and it is true that many have argued that additional context of one sort or another ought to be taken into consideration. Often, it has been argued that larger segments of linguistic material, or, more correctly, that segments better connected to particular contexts in one way or another ought to be used to devise and test hypotheses about grammar. Still, it has remained generally unclear just how *much* additional linguistic material would be required to put right whatever was wrong about (or missing from) the ubiquitous isolated sentence of modern linguistic treatises about grammar.[1] While it is true that practice has moved fairly steadily toward richer discourse contexts, nevertheless, certain mainstream theories, have typically been tested against isolated sentences drawn more or less at random from the hypothetical class of 'all and only the grammatical sentences' of some language as distinguished loosely from the much larger cosmic trash-bin of 'non-sentences' marked off by a leading asterisk (*), leading question-marks (??), or some other sign of corruption. For instance, here are a few examples of isolated sentences recently used in theoretical discussions about grammatical relations by practicing professionals of several theoretical stripes.

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[1] For instance, at a public lecture delivered at the University of New Mexico in 1993, John Haiman defended his use of isolated sentences (his topic was the grammatical marking of verbs in various languages for one or more properties of one or more arguments) with the correct observation that 'acres and acres of context' would not necessarily remove the indeterminacy of his data. Of course, he was right, but that sort of remedy was not being proposed. The correct remedy is explained here. In a nutshell, it is to pin down the arguments of the verb in the manner of TNRs. As shown here, this approach supplies access to unlimited material spatio-temporal context but without requiring its expression in surface-forms of discourse.

(1) Rain is falling (Langacker in a lecture at the 1995 Linguistic Institute).
(2) Lo vió a Juan (Mark Baker in a lecture at the 1995 Linguistic Institute).
(3) The following year witnessed another series of amazing political events (Langacker 1995:21)
(4) She poured a bottle of beer over his head (in Peck 1994:28).
(5) She broke a bottle of beer over his head (Peck 1994:28).
(6) Tom believed that the paper had been written by Anne and himself (C. L. Baker 1995:66, attributed to Ross 1970:226).
(7) That the hair was her own, she instantaneously felt as well satisfied as Marianne; the only difference in their conclusions was, that what Marianne considered as a free gift from her sister, Elinor was conscious must have been procured by some theft or contrivance unknown to herself (from Jane Austen, *Sense and Sensibility*, cited by C. L. Baker 1995:66).

What do sentences like these have in common? Apart from their alleged 'grammaticality' or 'acceptability to native-speakers', one of the noteworthy commonalities of these and all similar examples is that they are relatively undetermined fictions. That is, they do not point directly to any particular material facts situated in the space-time continuum as they would if they were, say, **true narrative representations (TNRs)**. For instance, if someone had asked where the rain was falling or who says so and why, in reference to example 1, Langacker would no doubt have been reasonably nonplussed. By all appearances, he meant for 1 to be taken merely as a 'possible sentence', i.e., as a fiction, that someone *might* assert, but not as a genuine assertion by any particular person or about any particular rain in any particular place.

The same sort of observation holds for the kind of data most commonly appealed to by many (though certainly not all) modern linguists doing grammatical analyses. In 2, who was the Juan who was seen and by whom was he seen and what does it matter? In 3, what year is it that we are talking about and what were the amazing political events that took place in it? How are those events relevant and what made them amazing? In 4 and 5, why did the alleged female abuse the alleged male with the beer and the beer bottle? Why did he stand for the pouring of beer on his head and then let her also break the bottle over his head? Were his hands tied? What had he done to provoke her? What is wrong with Tom in 6 that he merely believes that he wrote some paper? Doesn't he remember? Was he drugged, or is he daft? Interestingly, example 7, which is taken from a fictional story holds up better under the sort of unorthodox scrutiny being applied to it here than do the other examples. The hair, for instance, is apparently Elinor's, and has been given to Marianne by someone else, and so forth. The difference in the case of 7 is that it is made to resemble a true narrative representation (TNR). That is, the fictional characters and events of Jane Austen's story are better determined by her fictional representations of them than are the arguments of 1-6 as construed by linguists to argue points of grammar. But even in

Jane Austen's sentence, as in all fictions, the case is much less completely determined than in any garden-variety TNR. For instance, what color was the hair? How much of it was there? Where was it found? Etc. For countless questions such as these, unless the creator of the fiction happens to have supplied the answers, they cannot be found at all. By contrast in a TNR, the facts of the case have been and usually still can be to some extent examined independently by one or more suitably positioned and competent observers. Thus, in a TNR countless questions have determinate answers that are lacking in fictional cases.

But so what? Why should one or more arguments of any predication need to be fixed in relation to material facts (or even in purported fictional facts) in order to discuss and analyze to a fare-thee-well the grammatical relations that the predication involves? In other words, why should it matter to the theoretical linguist just what objects might be actually connected to some sentence under scrutiny? Would changing such logical objects change the grammatical relations?

The short answer is yes. The grammatical relations would change because *it is only with respect to their arguments that any grammatical relations have any meaning whatsoever—as is proved (see below) through TNR-theory.* Deictically pinning down one or several arguments of a linguistic sign through a real connection to one or more particular material objects is what constitutes the very grammatical relation itself. Without some degree of determinacy being associated with its argument(s) no grammatical relation of any kind can be determined at all. In fact, it is rigorously proved that all possible grammatical relations so thoroughly depend on direct or indirect reference to actual indexical acquaintances of communities of sign-users with particular facts in the material space-time continuum that no grammatical relation whatever can be determined in the slightest degree apart from such particulars.

Summing up in advance, TNR-theory (cf. Oller 1993, 1994, 1995; Oller & Jonz 1994) shows that to understand any representation of any kind it is necessary first to have an acquaintance with the logical objects that are referred to in that representation. For instance, to understand a fictional or generally applicable representation of rain, or a beer bottle, or someone breaking a beer bottle over someone's head, etc., it is necessary first to have some real acquaintance with rain, beer, bottles, bodily instantiated persons, heads of such bodies, and so forth. On the face of it, such a theory is unremarkable and even seems obvious, but many of its implications are not at all obvious and neither is it obvious at first how the theory can escape the often noted difficulties presented by fictions, illusions, mythological creatures, metaphors of all kinds, and other abstractions. It would be natural (but a little naive) to suppose that the theory merely makes explicit the commonly noticed fact that truth and meaning, in their commonest usages, are somehow related. But the development of the theory and its consequences in a rigorous and comprehensive manner leads to many discoveries that are far from obvious and, along the way, a plethora of would-be objections from less adequate theories are disposed of by showing how those theories can be completed.

Among the non-obvious findings is that grammatical relations are utterly dependent on perceptions of material states of affairs, events, and relations between physical objects in the space-time world. This last idea had been examined and rejected by various theoreticians many times and in many contexts. Generally the rejections were based on the supposition that errors, illusions, hallucinations, and the like make it impossible to say for certain in any isolated case that a given view of the external world is not false (e.g., cf. Jackendoff 1987). But, such argumentation is fallacious in all of its forms. Errors, confusions, and the like could never be known to exist in any case whatever if there were no TNRs. Further, anticipating the central point of TNR-theory as applied to the determinacy of grammatical relations, the upshot of the theory can be seen in a simple mental experiment. Pick any grammatical relation you like. It does not matter whether it be a predication involving only one argument (a monadic relation), e.g., such as the rain that is reported to fall in example 1, or a predication with two arguments (a dyadic case) such as Juan and the person who allegedly sees him in 2, or a predication of three arguments (a triadic relation) as in 3, or four as in 4 and 5, or any relation with any number of arguments (any polyad). Consider what happens to the relation embodied in the predication if the logical object(s) which constitute(s) its arguments should be annihilated throughout all its (their) history—past, present, and future. The relation itself, in all of its aspects, also ceases to exist. This is a logical consequence of the nature of relations in general (cf. Peirce 1897). Grammatical relations are not exempted. As Langacker (1991:28 and elsewhere) observes, conceptual relations are dependent on the logical objects that constitute them while the objects themselves enjoy a certain autonomy. He is correct also in saying that 'physical objects' constitute 'a special (though privileged) case' of the 'noun category prototype' (Langacker 1991:63). Here, however, I will show why Langacker's statement is correct by proving that physical objects discriminated in space-time by competent observers constitute *the only possible basis for the determinacy of any sign of any kind.*

Postponing the demonstration only temporarily, we might do well to ask why so many theoreticians have put so much emphasis on isolated sentences reporting on general fictional facts. In the first installment of his two volume (1983, 1990) introduction to a typological and functional syntax Givón wrote:

> 'The traditional methodology employed by linguists in their study of syntax has been confined, almost exclusively, to the study of meaning and structure of isolated sentences, detached from speaker, hearer and communicative context' (1983:10).

This practice he saw as 'a necessary and preliminary step in identifying the inventory of coding devices which make morpho-syntactic structure' though he asserted that 'the goal . . . is to elucidate how those devices are used in coding and *communicating knowledge*' (1983:10, his emphasis). He recommended, however, 'the study of texts, and . . . of the functional distribution of various morpho-syntactic structures within the text . . . [as] a necessary and natural transition towards linking language and communication with cognition' (1983:11).

In the main Givón's subsequent implementation of his agenda is compatible with the results of the theory to be expounded here, but his defense of isolated sentences is not. Are not cognition, language, and communication normally linked in language development from its very beginnings in early childhood? Langacker (1991:4) says that 'a complete analysis of meaning is tantamount to a complete account of developmental cognition'. Therefore, why should cognition, language, and communication not be linked in the construction of grammatical theory from the very beginning? How can it be reasonable to suppose that sentences isolated from contexts of ordinary use ought ever to serve as data from which to build or test a theory of grammar? Or, putting the same question in a more abstract and more adequate form, what after all is really deficient about isolated sentences as a basis for building up a theory of grammar?

TNR-theory shows, in fact, that the length *per se* of any given segment of discourse is not at all critical to the determination of its meaning or its grammatical structure. Determination, the theory shows, is crucially tied to our acquaintance with bodily objects, events, and relations in the material space-time continuum. Upon close scrutiny, it turns out that if signs of any kind—including sounds, words, sentences, and longer segments of discourse—are loosened point-by-point and line-by-line from whatever indexical moorings once secured them within some actual material spatio-temporal context (or some plurality of contexts), they become increasingly indeterminate with respect to what they mean and with respect to how their parts and relations are intended or might be intended to be construed relative to any possible state of affairs. All of this holds equally for the problem facing a child acquiring a language, a person attempting to produce or comprehend a discursive structure, or a linguist trying tc work out a comprehensive grammatical analysis.

Consider, for example, the various interpretations that might be associated with

(8) I get it.

This sentence appeared on a bumper sticker recently and affords a suitable case to which linguists might apply themselves to work up an analysis. Following a certain logical and linguistic tradition, we could suppose that 8 involves a transitive verb, *get*, with two arguments, *I* and *it* in a subject-verb-object relation. On this approach, *get* is a transitive verb with *I* as its subject acting on *it* as the direct object. This analysis is not altogether unsatisfactory, though it is notably inexplicit. What is more, even in this inexplicit and highly generalized (abstracted) form, the grammatical analysis is nevertheless grossly underdetermined by the data. The demonstrable indeterminacy of the grammatical relations in examples such as 8 extends without exception to any sign whatever to the extent that it may become separated from the sort of spatio-temporal material context required to construe it explicitly in the manner of a TNR.

To illustrate, supposing that 8 is divorced from any particular context. Who or what might the *I* refer to and what or who might *it* refer to? What sort of relation in such cases might *get* signalize between the *I* and the *it*? A moment's reflection will show that as soon as and for as long as any such structure is divorced from any given factual (material) context in which an instance of the word *I* might appear, that pronoun might designate absolutely any conceivable ego-reference point. For instance, in an imaginary world where objects, events, and relations of all kinds are personified, any conceivable element could serve as the discursive locus of the ego-reference point designated as *I*. We could put a sentence such as 8 in front of *said the* ___ , as in *'I get it,' said the falling object*, where any conceivable referent could serve to fill in the blank. Owing to the fact that any possible referent that can be conceived can also be construed as the locus of an ego (to be appropriately designated by the pronoun *I*), in an isolated sentence such as 8 any such sign is indefinitely variable and indeterminate with respect to its object, and hence (as will be proved below) with respect to its grammar. All that keeps 8 from being entirely indeterminate is that *I* is conventionally taken as a particular pronoun in English and is predicated of the person who utters it as its own referent. But, it must be noted that to construe the sign in this way is merely to presuppose a great deal about the object of the sign and about the sign's relation to just that object. If the sentence in question were to be regarded strictly as isolated from any particular context, the construal just illustrated involves cheating on the game.

Now, consider the *it* of example 8. Here, the indeterminacy is nearly as great as it is in the *I* of the same example, and neither one can easily be determined without a similar determination of the other. Depending on who or what the *I* may refer to, the *it* also varies. Similarly, depending on the determination of the meanings of *I* and *it*, the relation signalized in the verb *get* also varies. Consider some of the possibilities. For a large and grossly indeterminate class of cases, the *I* of example 8 might be construed, or might have been deployed, so as to refer to the owner of a certain car to which a certain bumper sticker is attached. Or, it might be the person who frequently drives the car but is not the owner. Or, these might be one and the same person. Or, a prankster may have put the sticker on the car unbeknownst to the driver or owner. Assuming some such options as these, the *it* might refer to something that the person in question *gets* in the manner of a newspaper, or a radio program, or a journal, or a season pass to certain athletic events, the Santa Fe opera, etc. Depending then in part on the nature of the referent of *I* and in part on the nature of the referent of *it*, the *getting* might involve a deliberate act such as causing a service or product to be delivered to the agent-*I*. In cases like these, though the specific material constraints on possible construals would vary considerably from one case to another, we find a class of transitive grammatical structures consisting of the sort of relation summed up as

(i) an intelligent agent (designated by the subject *I*)—intentionally acting upon so as to obtain (as shown by the verb *get*)—an object recommended to other possible consumers through the agency of the intelligent consumer and by virtue of the message contained in the bumper sticker (the object *it*)

On this analysis, the SVO option proposed earlier is sustained.

But, there is another lumpy rag-bag of countless additional possibilities. Suppose the *I* instead referred to the dog, cat, robot, slave, etc., of a frequent driver or passenger of the car and that the *it* referred to a certain brand of dog or cat food, pet medicine, flea repellant, doggie bath, robot oil, slave treatment, or the like. If this were the case, the grammatical relation itself would metamorphasize at a deep level into something like

(ii) an animate agent (designated by the surface-subject but really the deep object)—receives (shown by the verb *get*)—some recommended product or service (shown by the surface-object *it* which is really the deep subject of the entire proposition)

In this case, the grammatical relations resolve into an OVS structure at a deeper level though the surface form still suggests an SVO structure as in analysis (i) above.

Or, consider another indefinitely large class of still underdetermined possibilities. Suppose the object of *I* were a person or personified object that catches a cold, gets the blame, takes the beating, understands the joke, grasps the Zeitgeist of the times, sees the meaning of nearly every bumper sticker, etc. In this loose multitude of possible cases, the grammatical relation resolves into something like

(iii) an agent-patient (designated by the surface-subject but really intermediate between an agent who acts or is acted upon at a deeper level of meaning)—becomes the victim or recipient of—some object, effect, or outcome (designated by the surface object of the verb, namely *it*, but which is really the instrument or agent of an action by which the agent-patient, designated by the *I* at the surface, is afflicted or benefitted in some way).

In this latter case, the grammatical relation is, in a certain respect, more or less intermediate between the extremes of (i) and (ii). While in (i) the object of *I* is construed as an intelligent and animate agent who acts on some other object in a deliberate manner, and though in (ii) the object of *I* is construed as a patient (not necessarily animate, nor necessarily acting deliberately on its own hook) receiving the benefits or effects of some other object that acts upon the first, in (iii) the object of *I* is some kind of agent that receives a certain benefit or affliction but is not necessarily volitionally involved either positively or negatively in the acquisition.

Now, the question is this: what factor, or what combination of factors, governs the determination of any particular grammatical alternative, or any class of alternatives, over the rest that are conceivable? To answer this question it is necessary, as is demonstrated in a strict deductive manner through TNR-theory, to appeal to known facts of ordinary experience. Such facts are constituted by bodily objects that are connected and interrelated in the material space-time continuum. Some might argue at this juncture (though Chomsky, Langacker, Lakoff, Johnson, and Givón have not) that no facts are known with sufficient certainty for this approach to work. Instead, most functionalists and cognitive linguists (Chomsky not being in either of these groups) contend that viewpoints and frames of reference constitute the best basis for figuring out grammatical relations and thus obviate the need to refer to any particular TNRs. However, Jackendoff (in a 1980 lecture at the Linguistics Institute; also, 1987) has taken the more extreme view that errors, illusions, hallucinations, lies, half-truths, and the like effectively prevent access to the kind of knowledge of facts that TNR-theory calls for (i.e., relatively perfect and unflawed representations which provide a suitable basis for knowledge). But the objections of Jackendoff and all those like them, work in favor of TNR-theory and not against it. By their very definition, fictions, errors (including hallucinations, illusions, etc. as special cases), and lies, in order to be known to exist at all, absolutely depend on representations of the true narrative kind to show up the fictions, errors, and lies, for what they are. So, comes the question, what exactly is a TNR and what distinguishes such a case from mere fictions, etc.?

In the first place, TNRs are more determinate than any others with respect to what they mean. In the second place, TNRs are connected to the space-time continuum through situated material objects. In the third place, TNRs are, on account of their determinacy and connectedness, generalizable in a meaningful way. But most importantly, TNR-theory shows in a strict deductive manner that only TNRs have the three important strictly formal properties just iterated. Among those properties, the concept of determinacy is the fulcrum upon which the entire rest of the argument depends and it is the element of greatest importance to theories of grammar. TNR-theory is important to all theories of grammar because only TNRs are sufficiently determinate to provide a suitable basis for testing any conceivable hypothesis about one or many grammatical relations. Hence, TNRs provide the only basis for satisfactorily determining the data required to provide an empirical basis for any conceivable theory of grammar.

What is meant here by **determining the data** is nothing more complicated than making it clear whatever it may be that any given linguistic sign or sequence of them purports to be about. Summing up the whole argument in its three main parts, (a) in order for grammatical relations to be made clear (b) the meanings of the linguistic forms from which those relations are inferred (i.e., abstracted) and to which they are related must be clear, and (c) for those meanings and relations to be made clear they must be deictically (indexically) tied to particular material objects and relations in the material spatio-temporal world of common experience. It is part (c) of this argument that, I think, is bound to be controversial. That part will be controversial, I suppose, because of the tendency of linguists dating back to Bloomfield (1933) to exclude the material world of experience from linguistic analysis—though certainly many exceptions to that trend could be noted. For instance, to single out just a few authors, Sapir (1921), Jespersen (1904), Reichling (1961), Hjelmslev (1963, 1967), Uhlenbeck (1963, 1967), Halliday (1967), Oller, Sales, & Harrington (1969), Oller (1970, 1972), Chafe (1970), Makkai (1972) did not support the mainstream trend. Nevertheless, in many contexts it has been considered sagacious to regard the spatio-temporal world as unnecessary metaphysical baggage that ought to be thrown overboard (or at least stowed out of sight below decks) in the name of parsimony. Ockham's razor was the understood basis: *entia non sunt multiplicanda praeter necessitatem*. Recently, the trend seems to be reversing itself (e.g., compare Johnson 1992 with Jackendoff 1987), as trends often do, but regardless what way the wind might be blowing today or tomorrow, the point of the present discussion is to prove conclusively the necessity of incorporating the sorts of material objects of space-time experience that are involved in TNRs. Such cases, it is claimed, are the essential basis for grounding any conceivable linguistic datum (or any corpus of data) that might be appealed to in support of any conceivable grammatical theory.

The reason we must appeal to the world of material objects in space and time is summed up in a single term—**determinacy**. To flesh out this concept, consider the sort of game an adult might play with a child where the adult holds something concealed in his or her closed hand and says to the child something like, 'Guess what I have for you'. Suppose further that the adult knows what he or she is concealing but the child does not. From the adult's point of view, what is concealed is relatively well-determined, i.e., better known to the adult than to the child. From the child's point of view, whatever may be concealed within the adult's hand remains to be discovered and is less well-determined. Consider the child's viewpoint a little further. The concealed object could be a piece of candy, grandmother's ruby ring, the key to a locked door, a lady bug, a piece of iron quartzite, a gold nugget, etc., etc., or nothing at all. Next, consider the adult's point of view a little further. Suppose that the object the adult is holding is a silver dollar minted in 1878. In selecting just that particular object to give to the child, the adult has determined what the special gift is. But, suppose that the child is now the author looking back to his childhood and that the adult in question was his Great Aunt, Tillie C'de Baca. Now, the gift, the recipient, and the giver (the three main arguments of the case) are all well-determined in the manner of a TNR—see Figure 1.

At the left hand side, there are material facts. On the right hand side, there are the materially produced signs that constitute the telling of the narrative itself—i.e., this sequence of signs constitutes the narrative-**representamen** (or the surface-form, also called the **sign-instance**, of the sign). In the middle, linking the two disparate realms of material facts and abstract representations, is the syntactic conjunction of the two realms which can only be achieved

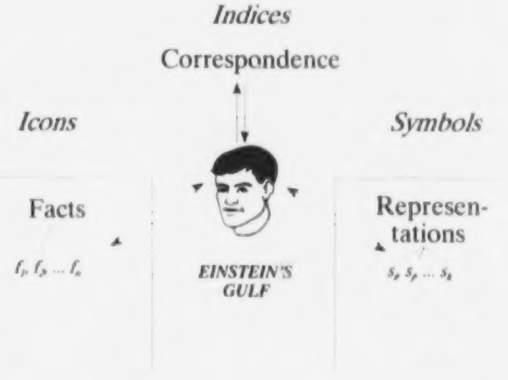

Figure 1. The defined structure of the TNR.

through an intermediate articulation by an intelligent observer who literally creates the links which must themselves share properties from both sides of what I have called (cf. Oller 1983, 1993) Einstein's Gulf—that 'logically unbridgeable gulf' which he said separates material objects on the one hand from abstract conceptualizations on the other (Einstein 1944:287). What connects them? Only indices construed by intelligent sign-users.

As Peirce showed in his logic of relatives (1897), a genuine representation of any existing state of affairs must involve three kinds of sign elements—iconic signs which resemble their objects, indexical signs which actually point out or call attention to their objects, and symbols which represent their objects in an arbitrarily determined manner by virtue of habit, convention, or law. Extending these categories to any TNR we find that the material facts of any true narrative are (or could have been) represented by any suitably positioned and competent observer in a perceptual (iconic) way; that objects or observers involved in the events reported are (or could have been) pointed out (indexically) by any suitably positioned and competent observer; and that all of the elements of the narrative that might be represented either iconically or indexically could also have been described in any known language (symbolically) by a suitably positioned and competent speaker of any language in which the narrative might have been expressed. Moreover, in a TNR these elements are balanced and articulated in such a manner that the construal of the grammatical relations from the facts through the links to the forms of the representation is well-balanced. In a word, it is true. That is, all that the construal of the representation purports to say is born out by the facts. The facts, if examined independently, as they may be (provided only that they are facts), will reveal much more than the representation purports to say of them, but if the representation does not purport to say anything false, it is as true as it purports to be. Such is the definition of any TNR.

The example just given also roughly exemplifies what is meant by the *relative* determinacy of a sign (or, in fact, any concept or representation), but it is possible to be much more explicit. Certain theoretical limits of determinacy can be set for all possible cases. At an absolute upper limit (a purely theoretical one), the particular object of a fully determinate sign would have to be known in all respects throughout its whole history of existence and in all its relations to other objects. If the object in question were really a material entity in the space-time continuum, presumably knowing all of its aspects would entail knowing the whole of the continuum with which it is, has been, and will be connected. But such an absolute limit of perfect determinacy is unattainable by persons of limited experience and finite abilities. In theory such absolute determinacy (as Johnson, 1992 suggests) could only be attributable to an omniscient, omnipresent, omnipotent God. For a human-being stuck in a material body in some limited portion of the space-time continuum such an absolute kind of determinacy is a purely hypothetical and unattainable ideal (cf. Putnam 1981). Still, it defines a theoretical upper limit on determinacy. At the other end of the spectrum, an absolute lower limit can be defined. If we try to imagine or conceive of an object that turns out to be altogether unrepresentable, i.e., the sort of thing that no predicate whatever could possibly be about, we arrive at the sort of thing which is at an absolute limit of indeterminacy (Oller 1996). Between these hypothetical absolute limits, it may be supposed, all the degrees of determinacy that are of interest to grammarians and linguists must fall.

Let the scope of any possible predication be conceived to include all of the possible particular logical objects which that predication might be construed by a sign-user to be about. Further, let it be stipulated that absolutely any sign or representation can be taken as some sort of predication purporting either to be about some logical object that may be construed as a monad, dyad, or higher polyad, or in limiting cases the sign may purport to be about all possible logical objects of a given kind or no logical object at all. In case one or more particular logical objects may be involved, the one or many may be relatively simple or complex. The predication in its manifest form, for instance, might be a name, a phrase, an isolated sentence, a description, an oath, promise, joke, riddle, exposition, product guarantee, will, legal decree, newspaper editorial, novel, dictionary, encyclopedia, or in fact any discourse or any segment thereof and of any complexity, abstractness, or fuzziness imaginable. The problem of the determination of any such predication, then, is to indicate in some manner just what arguments among the many possibilities that might be referred to are the ones intended to be referred to. Or, if the predication purports to be general or null, the problem is to say what it means.

For instance, take the monadic predication that ____ *is a point* as in the sentence, *X is a point*. Such a representation might be construed relative to some line or some space. Take the case of a line. Let us imagine it to be a great circle extended throughout space and joined again to itself. In the case of such a scope the problem of determining a particular point somewhere on the line is at a limit of indeterminacy. The difficulty would only be amplified if we took an area or the volume of a sphere as the scope of our predication. In the simplest linear case the problem of determinacy is how any one point on the line, call it *X*, might be distinguished from any other point such as might be designated by *A*, *B*, *C*, . . . ∞.

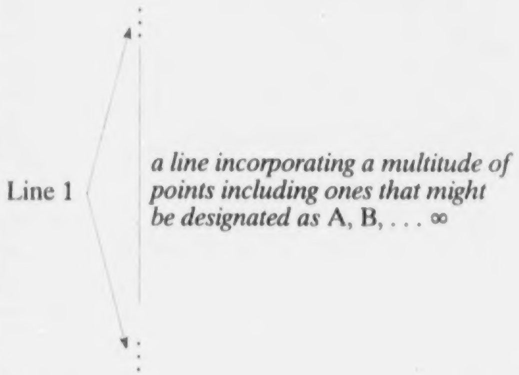
Line 1
a line incorporating a multitude of points including ones that might be designated as A, B, . . . ∞

Figure 2. The indeterminacy of the general predication ____ *is a point*.

Suppose the line consisted of the sort of multitude of objects which could be construed as a Peircean continuum (in this case designated as *points* of the sort found on the line so tightly joined and so indistinct from one another that they were really melted together) the indeterminacy of the general predication ____ *is a point* (where any old point will do to fill the blank) is at an extreme but definable limit relative to the scope of the line (see Figure 2). We may say that such a general predication could take absolutely any point on the line as its particular subject. That is, the predication is completely general relative to its scope. To further pin down the predication, or to determine it as pertaining to a particular logical object, it is necessary to single out just which point is the subject for attention. The problem is how to single out *X* so as to distinguish it from all the other points on the line to which the predication ____ *is a point* is equally applicable. In Figure 2, the line pictured may be taken to represent the general scope of the predication ____ *is a* *point*. The ellipses at the ends of the vertical segment designated as 'Line 1' in Figure 2 suggest that the line is infinitely extended on both ends. In such a context, the scope of the predication applies to any conceivable point absolutely anywhere on the line. Without exhausting the points on the line, or even on any segment of it, we might designate as many points as we like by such terms as *A*, *B*, *C*, and so on. There is no doubt that the number of possible points which might be so designated is infinite. That is, relative to its conceived scope, the predication ____ *is a point* is perfectly general and at an infinite (though not an absolute) limit of indeterminacy. All that keeps the predication from sliding all the way to an absolute zero determinacy is the setting of the scope of that predication relative to the particular line in question. Remove that aspect of the construal (or grammar) of the predication and the degree of determinacy goes to absolute zero.

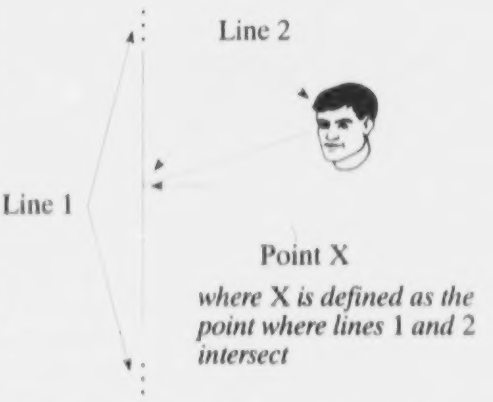
Line 2
Line 1
Point X
where X is defined as the point where lines 1 and 2 intersect

Figure 3. Determining a certain point on a line.

But suppose that we draw another line, call it Line 2, as defined, for instance, by a line of sight (as shown in Figure 3) in such a way as to intersect the first line just at the point we wish to single out for attention, say at point *X*. Now, point *X* is properly construed as a particular point on Line 1, by virtue of its being singled out in the manner shown in Figure 3. Perhaps it should be said that any such singling out necessarily involves the bodily position of the observer in the manner argued by Johnson (1992). In fact, once all this is done, *X* is at a limit (though certainly not an absolute one) of relatively perfect determinacy. That is, relative to the infinite multitude of possible points that might have been singled out for attention on the line in question, since the particular *X* intended really is singled out by the line of sight (Line 2) intersecting the first line (Line 1), point *X* is *relatively* well-determined. That is, relative to all the other possibilities which might have been singled out for attention, point *X* is signalized as the one of interest. Even if the boundaries of point *X* should be indistinct and conceptually inexact, so long as point *X* is singled out from all the other possibilities that might have been indicated, the representation is as determinate as it purports to be. That is, its determinacy is essentially complete insofar as it was represented to be. It is unitary (100%) for practical purposes within its purview as a sign. It did not boast more than that *X is a point* and if it delivers a logical object '*X*' meeting the requirements of its predicate, the case has all the truth that it purports to have. In fact, to require more of a representation than that its predication should be as true of its argument as it purports to be would be to require too much—more than the sign ever offered to deliver. It would involve adding some new, unintended and extraneous meaning to the predication. Upon examination, it also comes out that the kind of determinacy just defined requires precisely the sort of representation pictured in Figure 1 above—a TNR.[2]

A predication determined in such a manner sets the defined upper limit of relatively unitary determinacy. With that idea of determinacy in mind, certain prior results of TNR-theory (cf. Oller 1993, 1994, 1995) can now be succinctly summarized. To prove that only TNRs possess the logical properties of relatively perfected determinacy (of whatever predications they may involve), connectedness (to the space-time continuum), and generalizability with respect to the meaning of their predications, it is necessary to examine the formal properties of all possible representations.

The proof begins by setting the limits of what may count as a representation as seen in the boundary of the Universe of Representations as shown in Figure 4. To serve as a representation, the candidate must take some manifest or noticeable form, else it cannot serve as any representation of anything to anyone.[3] Further, every candidate that shall count as a representation must be related to something other than itself, else it could not be noticed. Now, TNRs meet these requirements by their very definition and are also, by definition, relatively well-determined with respect to their meanings, and relatively well-connected to the space-time continuum through their determined logical objects. It remains, only, therefore to examine all the rest of the possible representations in the universe of signs. The limits of that universe have already been set.

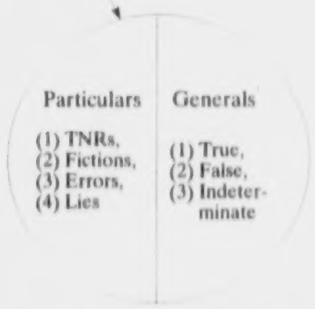
*The limit of the **Universe of Representations**. Anything that is altogether unnoticeable, altogether unrelated to anything other than itself (i.e., anything altogether meaningless) falls outside the boundary.*

Figure 4. Exhaustively defining and dividing the **Universe of Representations**.

That universe of representations, as shown in Figure 4, can be divided exhaustively into two parts: the first part may be construed as containing all those representations that purport to be about particular logical objects such as might be found in the material space-time world, and the second part may be construed as containing all those representations that purport to be about all possible logical objects of a given kind, whether found in the material space-time world or not. Representations, it comes out upon close scrutiny, that purport to be about determinate pluralities are of the first kind (particulars) rather than the second (generals). Between representations purporting to be about particulars, therefore, and representations purporting to be general nothing falls. The subclasses are exhaustive.

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[2] This view contrasts markedly with Chomsky's statement that 'we have no notion of "well-formed sentence" . . . Expressions have the interpretations assigned to them by the performance systems in which the language is embedded: period' (1992:27). It comes nearer the view expressed by Johnson (1992:172) that we 'experience, understand, and order our lives as stories that we are living out. Whatever human rationality consists in, it is certainly tied up with narrative structures and the quest for narrative unity.'

[3] Lamb (1994:270) comes very near formulating these same limits, though his criteria for meaning are cognitive whereas the Peircean limits are strictly logical and do not require any reference to cognition as such.

The proof proceeds by further dividing the subclass of particulars exhaustively into TNRs (already examined with respect to the first two properties, determinacy and connectedness) plus fictions (just the ones purporting to be about particulars, the others being generals), errors, and lies (see Figure 4). A purely formal analysis of the component parts of fictions, errors, and lies reveals that they are all degenerate with respect to determinacy and connectedness relative to the TNR. Fictions have the formal properties of TNRs except for the materially instantiated and independently existing facts of the TNR—hence fictions are degenerate by one degree from the formal structure of the TNR. Errors (including illusions, hallucinations, and any conceivable representation that is falsely construed as a TNR) are degenerate in two components of the TNR structure—the facts are not as represented (hence, their first degree of degeneracy) and the representation is not articulated so as to fit the facts that do exist (hence, their second degree of degeneracy). Lies are degenerate in all three components of the TNR—the facts are not as represented (first degree), the linking of facts with representations is deliberately corrupted with false indices (second degree), and the representation itself is not the sort needed to correspond to the facts that exist (third degree). Further, it can be seen that no additional degree of degeneracy from the case of the lie is possible without reaching the limit of complete nonsense, which must fall outside the universe of genuine representations.

Thus, among particulars only TNRs have the properties of determinacy and connectedness in relatively perfected forms. It remains to examine generals. Let these be exhaustively divided into true, false, and indeterminate cases (as seen in Figure 4). By the definition of TNRs, false and indeterminate generals are less determinate and less well connected to the material space-time continuum than TNRs. Further, to prove any false general to be false, a TNR must be invoked. But what of true generals or what of the determinate parts of the meanings of relatively indeterminate cases (e.g., such a statement as, *Human beings are mortal*, or, *Autism is a twisted tangle of knotted cables)*? These, it turns out upon examination, are exactly equivalent to generalized fictions until or unless they can be associated with one or more true narrative representations to instantiate them and give them determinate meaning. Thus, the case is proved. *Quod erat demonstrandum* (*Q. E. D*).

In fact, TNR-theory can be formulated in a still more general way. Let S stand for any abstract sign regardless of its complexity (be it the utterance, inscription, or other signing of a name, sentence, interjection, conversation, story, novel, encyclopedia, or whatever). Let O stand for the logical object (whether simple or complex, whether a single entity or a plurality or series of entities), in all cases a particularity relative to S, of which S purports to be a faithful surrogate or representative to some sign-user or community of sign users, which shall be designated U. It can be strictly proved that:

(I) the abstracted material content of S comes only from its particular O and not at all from S nor even from U;

(II) the production of any instance of S, designated S_i, can come only from a sign-act of some U, designated U_i;

(III) the determination of the character of O is strictly a function of S as construed (or deployed) by U;

(IV) in the unlimited cases where an S, call it S', may take another S (together with the O of that S) as its own object (call the composite object O'), just as the construal relation (i.e., the grammatical relation) between S and O is utterly dependent for its content on O, the construal relation between S' and O' remains dependent on *O*, and so on for all conceivable composite sign-structures, call them S'', S''', and so forth, that might be construed relative to *O*.

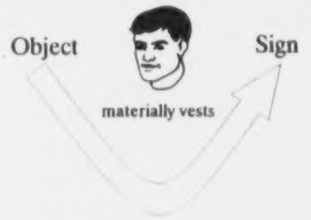

Figure 5. Source of the material content of any sign.

First, consider proposition (I), summed up in Figure 5, that the material content of *S* can come only from its particular *O*. Clearly, whatever content *S* might get from *O* would be valid material content of *O*. But, suppose some other object such as *S*, itself, or *U*, or some object besides *O* should contribute some content to *S*. In all such cases, *that additional or extraneous* content must be either true, false, or indeterminate with respect to *O*. If false or indeterminate, then, the content cannot be validly attributed to *O* and could form no part of the valid material content of *S* relative to *O*. But, if true of *O*, the *S* by itself cannot determine such content but would require reference mediated by *U* to *O*. That is content from any source other than *O* would have to accord with *O*, and nothing else, to be valid. (*Q. E. D*). The proof shows little more than that the sign must be a faithful slave to its object or else, in its unfaithful parts or aspects, no sign of *that* object at all.

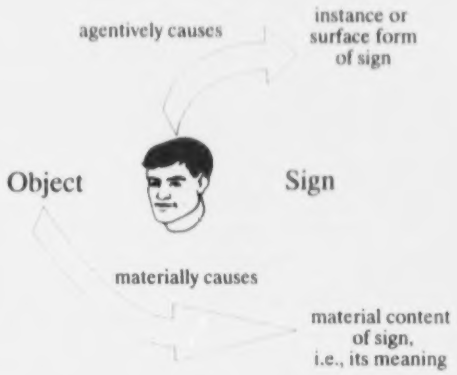
agentively causes
instance or surface form of sign
Object
Sign
materially causes
material content of sign, i.e., its meaning

Figure 6. Source of the surface-form or sign-instance of any sign.

Next, comes proposition (II). As summed up in Figure 6, it says that the surface-forms, i.e., the noticeable marks or instances of signs, come exclusively from sign-users. Thus, Figure 5 may be expanded as shown in Figure 6. And here is the proof. The material object *O* being at a limit of particularity as it is, is powerless to produce a general sign, *S*, of itself independently of an act of the sign-user (or community), *U*.[4] More specifically, what is produced by *U* is the particular sign-instance, S_i, which requires the representative capacity (i.e., intelligence and, in cases other than perception and autonomic acts, also volition) of *U*, as mediator between *S* and *O*. Remove that mediator and *O* is utterly powerless to produce a general sign-instance of itself. Any material object (including any state of affairs or series of states) may be however it may be, but it cannot produce a sign of itself unless it should itself be a sign-user. But if it were a sign-user, S_i would exclusively come from *U* acting as an agent and the material content would come exclusively from *O* per the previous proof. *Q. E. D.*

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[4] Thus, when we say something like, *Where there is smoke there is fire*, or, *Smoke means fire*, we metaphorically attribute significant powers to the fire as a sign-agency. Such cases, however, do not confute the point at stake in the least, but rather depend upon it.

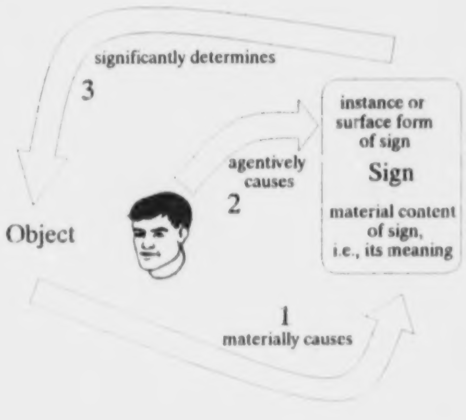

Figure 7. The sign as the source of the significant determinacy of its object.

Next, as pictured in Figure 7, it remains to prove (III) that the determination of *O* comes exclusively from *S* through *U*. In Figure 7 the relevant relations are shown with the arrow numbered 3 at the top of the figure depicting the construal of *S* so as to determine *O*. In fact, it is clear that since no particular *O* (excepting one that is also a *U*) can produce an S_i of itself, the fact that an S_i can be associated with a certain material content that really does originate in *O* must be owed to the intelligent act(s) of *U* rather than to any agency of *O*. As a particular material object, *O* can only contribute its own material content to *S* via whatever physical forces emanate from *O*, but these are not intentionally controlled by *O* nor can they be fully brought under the control of *O* even if it should be a *U*. While it is true that the brute material force of *O* must impinge on *U* in such a way as to inform the material content of the S_i subsequently produced, that brute force can no more materially cause the S_i to come into existence without the assistance of *U* than a stone's properties can be *consciously* impressed on the stone or on its material surrounds. Thus, if the S_i pertaining to *O* cannot at all be produced by *O*, the significant determination of *O* must come from the significance of *S* and not from any action of *O* itself, excepting, of course, the forces naturally emanating from its material existence. Remove that material existence and only *S* could determine the nature of *O*, yet *S*, being arbitrary except for its relation to *O* can determine nothing but the meaning that *U* may abstract from *O*. Aside from that meaning, the S_i all by itself is perfectly arbitrary. Retain the material existence of *O* and the material content of *S* is constrained (materially by forces emanating from *O*) so as to make possible the relation of determinacy between *S* and *O*. *Q. E. D.*

Next, it remains to show that (IV) the determinacy of grammatical relations depends exclusively on the *O* of whatever *S* the grammatical relation may be part of. This paraphrase of proposition IV is really a derived corollary of propositions I, II, and III. All that it presupposes is what has been proved in I, II, and III, and all that it adds to them is the proposition that every sign-structure can be regarded as an object in its own right and can be incorporated as part of another sign-structure. The combined result of the prior proofs and the additional proposition (that is, the whole of proposition IV) is that every grammatical relation (insofar as all of them really are construal relations between signs and their objects) depends on its being grounded relative to some material object. Omit that grounding entirely and every conceivable grammatical relation is rendered indeterminate to the point of becoming utterly void and meaningless, or, from the vantage point of the language user, quite undiscoverable and thus indeterminate. Or, taking the view of the would-be grammarian, without the requisite grounding in some material object, any grammatical relation becomes undefinable, or, if it should be defined, the definition would be empirically untestable.

The upshot of the foregoing for grammatical theories is that we can now see precisely what is wrong about the practice of invoking the ubiquitous 'isolated sentence' (or any discourse segment of any length that may be ungrounded with respect to the world of experience) as evidence for or against some proposed grammatical analysis. The main problem with such a practice is not owed to the dissociation of the 'isolated' element from whatever additional discourse it may have been excised from, or to which it might be attached in a perfect world. Rather, the problem is that the 'isolated sentence' (or other segment of discourse) is either cut loose from whatever moorings it may have had in the past with particular elements of the material space-time world, or it is parachuted out of the blue sky into the treatise or discourse where it is supposed to serve as linguistic evidence, without in either case providing actual indexical links to any particular material objects that might be consulted independently so as to determine the character of the grammatical relation at issue. In a word, the typical isolated sentence or other bit of discourse used as linguistic evidence is usually a **fiction**.

As TNR-theory proves, fictions are too indeterminate to provide the material grounding pre-requisite for the testing of theories of grammar or for the determination of any grammatical relation whatsoever. Though there are some instances in the linguistics literature where TNRs are invoked directly or indirectly (e.g., Longacre 1983, Mills 1995, Yngve 1995), reference to the material objects and their spatio-temporal relations is often an ad hoc addendum rather than a central concern of the analysis. The reader can find so much evidence along this line by opening almost any modern linguistic journal or book that I will refrain from citing examples further than the ones already given at the opening of this paper.

TNR-theory also reveals some logical properties of signs that provide a remarkable basis for developing a more explicit theory of language acquisition (and the whole of mental development from infancy to maturity) than has been possible up till now. For instance, it follows from the theory that infants upon entering the spatio-temporal realm of material objects encounter an unending stream of particularities. Owing to the fact that the temporal location of relations between objects is changing with every heart-beat, and the fact that time cannot apparently be reversed, the assumption that the logical objects of perception are particularities cannot be avoided. In fact, granting that the necessary starting point for our acquaintance with objects and relations of all kinds as already proved in TNR-theory is some particular case or other, we find also that any percept is particular in the most extreme sense possible. Insofar as we can mean anything by particularity, the changing states of affairs in the world of experience are, by all accounts, completely particular. However, those extreme particularities that we know initially through perception produce signs in us, by virtue of our bodily relation to those particularities and those signs turn out to be quite general. In fact, every sign insofar as it serves to represent some logical object (be it a thing, state of affairs, event, complex of relations, or whatever) is generally applicable to its logical object. That is, insofar as the logical object has any spatial and temporal extendedness, e.g., so long as the book remains a book or is construed as such, a sign of that object (e.g., a copy, percept of the copy, or title of that copy) is generally applicable to the book. This is bound to be true whether the sign is an iconic percept of the book, an index pointing to the iconic-percept of the book, a concept of the iconic-percept of the book, or such a concept that is linked indexically to an iconic-percept of the book or to other concepts, etc., ad infinitum.

So, from TNR-theory which provides a basis for the grounding of all conceivable signs, initially, we can distinguish fairly sharply between three distinct levels of abstraction. First, consider the lower extreme of nearly zero abstractness or almost absolute particularity. This level is manifested in the material relations of objects in space and time. Next, consider the upper extreme of nearly absolute abstractness or the *near* total absence of particularity.[5] This level is manifested in the generality of any sign or predicate which might be construed relative to one or many particular objects. In between these two extreme levels of abstraction, we find the intermediate position of the sign-user. On the one hand, via the bodily presence of the sign-user in the space-time world, objects (including the body of this sign-user and other sign-users as well as the manifest forms of signs they produce) come into particular relations with the sign-user. However, the signs themselves are not entirely a product of the sign-user's own acts. Only the construal of the surface-forms (i.e., the sign instances) that a particular sign-user happens to construe (or deploy) are owed to that sign-user's particularity in acting as a bodily-agent. The material content of the sign, as was proved above, is owed exclusively to the material object of the sign. Hence, the sign-user contributes only the construal of the sign-instance but none of its content. Moreover, the content of the sign is as general as it can be, while the sign instance is as particular as it can be. Both of these elements of the sign are at the extreme limits of abstraction.

The act of the sign-user in construing a sign (or in deploying one) is a kind of hybrid level of abstraction exactly between the two poles defined earlier. The significance of the sign, however, is as utterly independent of the sign-user as it is dependent on the logical object of the sign. This can be seen by noting that the same sign construed by a different sign-user relative to the same object will give the same significance to the object. But, a different object, though not a different user or sign, will necessarily alter the significance of the sign. Thus, three levels of abstraction can be distinguished already and these correspond exactly to the three components of the TNR as seen above in Figure 1. It remains only to flesh out the theory of abstraction in order to complete the task at hand and to produce a theory of sign acquisition, which by logical entailment from TNR-theory will also be a theory of language acquisition, discourse production/comprehension, and intelligence. However, these further developments are saved for Part 2 of this paper.

Here, two distinct proofs from TNR-theory have been offered showing that predicates receive all of their particular meaning and grammatical determinacy from their particular arguments. This same result was formerly achieved more rigorously by Peirce in his logic of relatives. TNR-theory shows, however, that abstract symbols of all kinds are essentially alike in all general respects except for what Peirce called their **_ad_inity**—that is the number of arguments they are disposed to collect to themselves in order to become a filled up predication or what he called a **medad** (one requiring no additional argument fillers to complete it). In Part 2, I go further in fleshing out an explicit theory of how all such grammatical structures in all possible sign-systems can be acquired by a suitably positioned bodily observer located in the material space-time continuum. From TNR-theory and its corollary premises, I have also shown here explicitly what is deficient in the ubiquitous 'isolated sentence' as a test case or as any kind of evidence or proof text for any conceivable hypothesis about any conceivable grammatical relation. In Part 2, I show, according to an explicit theory of abstraction, developed along the lines of Peircean exact logic, how grammatical relations are acquired and deployed in discursive inferences.

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[5] Bear in mind that an absolute absence of particularity would assure utter meaninglessness.

From TNR-theory, it comes out, that any sign dissociated from particular argument(s), reduces at best to a general predication with little or no determinacy, and, at a limit on the low side, such a sign divorced of all possible material and spatio-temporal context reduces to nothing at all—not even an empty cipher. In fact, the degree of determinacy of any predication whatever, as already proved through TNR-theory, is entirely accounted for by the determinacy with which that predication may be associated via TNRs with particular material objects in the space-time continuum. Exactly to the extent that the association may be vague, the determinacy of the predication will be vague. Exactly to the extent that the association is polysemous, the determinacy of the predication will be multi-valent and equally polysemous. If the predication is made out to be general relative to some range of possible objects, the determinacy relative to those objects finds its level of determinacy precisely relative to its range of possible objects. If that range should also become entirely indeterminate, then the predication would become not merely general but so completely general as to be applicable to all possible objects. If this were to happen, the sign would become an altogether empty predicate. But, as we saw earlier, no sign can be quite that general.

Let us return briefly to example 8. As a representation regarded as fictional, it appears to be hopelessly polysemous. But, consider how its grammatical relations are materially determined if the ostensible arguments *I* and *it* are fixed in the manner of a TNR. Suppose that *I* and *it* are associated explicitly with particular material objects in the space-time continuum. Suppose that 8 were merely a surface manifestation, i.e., a sign-instance, of a TNR where *I* were predicated of the reader of this paper, by that same reader, and suppose further that *it* were predicated, by that same reader, of TNR-theory as it has been expressed up to here. That is, suppose the reader says, something like, 'Oh! *I get it*.' It necessarily follows, owing to the real characteristics of such objects as have now been deictically supplied, i.e., their actual relations in the spatio-temporal experience of the reader (quite irrespective of the degree or quality of that experience, so long as it is not entirely null or utterly illusory), that the putative verb *get* signifies the sort of grammatical relationship depicted in (iii) above and not those described (however vaguely) in (i) or (ii). Furthermore, it can readily be seen that the determinacy of the grammatical relations contained in example 8 as transmogrified into a TNR can now be determined with an accuracy and richness that far exceeds the level loosely described in (iii) above. That is, if 8 were a TNR of the sort described in this paragraph, its material objects would enable any linguist undertaking its grammatical analysis to be far more explicit than (iii) above.[6]

In the first volume of his two volume series (1983, 1990), Givón expresses a view that is tantamount to saying that determinacy of the kind proved to be possible only through TNRs cannot be attained at all. He says, 'while in a firmly held and conveniently fixed context some phenomena may indeed seem stable and firm, the choice of context—any context—is in principle arbitrary' (1983:1).

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[6] I will not produce a more explicit analysis, because the reader can easily carry out the exercise if desired.

This premise is one that he, apparently, stands by throughout the somewhat later 1990 volume (also in Givón 1993). TNR-theory shows, however, that for any given observer situated in the space-time continuum, the choice of context in which that observer finds himself or herself is never entirely arbitrary. Once even one of the arguments of a TNR is determined, the case from there forward cannot be altogether arbitrary in the manner that Givón claims.

Of course, he is stressing the fact that the linguist who seeks to construct a theory of grammar is at liberty to consider data from an enormous range of contexts. This is not disputed. However, the relative 'stability' and 'firmness' of any given spatio-temporal context which might be described in the manner of a TNR is not owed at all to any choice by the analyst. This has been proved. Rather, that relative determinacy (i.e., 'stability' and 'firmness' as perceived by the analyst) is owed to reasonable inferences that connect linguistic data samples indirectly, at least, with material objects and their relations in the spatio-temporal world. As odd as it may seem to philosophers, linguists, and others trained to think of material contexts as insubstantial fictions, the vagaries involved in the linguist's choice of which material contexts to consider or even the uncertainties involved in the inestimable multitude of ways in which the analytical task might be undertaken, or even the multitude of ways that different languages and cultures construe meanings through grammar, do not in any way make any spatio-temporal material context any more vague or any less determinate than it was prior to those choices and sign-acts. In fact, the choice of context is completely irrelevant to the content of any material spatio-temporal context whatsoever.

Langacker (1987:194) contended that

> 'meaning is not objectively given, but constructed, even for expressions pertaining to objective reality. We therefore cannot account for meaning by describing objective reality, but only by describing the cognitive routines that constitute a person's understanding of it. The subject matter of semantic analysis is human conceptualization, and the structures of concern are those that a person imposes on his mental experience through active cognitive processing.'

Later, (1991:61), he reiterated:

> 'Meaning is therefore sought in the realm of cognitive processing. It does not reside in objective reality, nor is the problem of semantic description revealingly formulated in terms of truth conditions. Even expressions describing an objective situation may differ in meaning depending on how the situation is construed.'

Of course, it is true that construal is important to the way in which any given objective situation or material state of affairs in space-time will be represented. But, construal as will be shown in greater detail with respect to the theory of abstraction in Part 2, essentially involves the sign-user bodily *in* the state of affairs (cf. Johnson 1992). Similarly, the community is involved in the construal just to the extent that the construal itself conforms to the conventions, norms, and habits of that community. This involvement is actualized in the real history of similar acts that are linked in a spatio-temporal way to the one at hand.

None of this, however, has the slightest impact on the fact that reality is utterly unaffected by however we may represent it to be.[7] Our bodily acts, of course, and those of whole communities can affect how things really are, and can shape and arrange them in particular ways, but even these events regarded as facts are, in principle and in fact, altogether unaffected by however we may represent them to be. The generally false belief that representations can automatically change material states of affairs without the bodily intervention of sign-users gets its appeal from our noticing *after the fact* that a certain representation, say, some cultural belief for instance, *already has affected* practice and thus has indirectly influenced some spatio-temporal state of affairs, or its subsequent interpretation. There is no error in supposing that bodily acts can and have actually influenced things and that through the bodily actions the beliefs and representations of a community have affected material things and relations. The error arises in supposing that the belief and its influences, however they may find expression in societal interactions, can be changed by representations that necessarily come *after the fact*. But, unless time flows backwards relative to representational acts (though it does not anywhere else, apparently), representations can only influence states of affairs in the space-time continuum to the extent that those representations precede and influence bodily actions that materially impact those states of affairs. Otherwise, representations *per se*, as abstractions, do not have any material impact at all on the states of affairs they represent or purport to represent.

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[7] This indeed was Peirce's definition of reality—that which is independent of however we may represent it to be (cf. Peirce, 1878:54).

Finally, consider example 9 from Chomsky (1982:51):

(9) here is the influential professor that John sent his book to *t* in order to impress *e*

Example 9, along with many others (any one of which could have served as well here) is supposed to illustrate a case of a 'parasitic gap' (in this case, *e*). In the analysis underway, Chomsky is considering a particular sort of gap left behind by some filler which has (he contends) been moved in the underlying generative process. But the gap in this case arises not from the usual source for such gaps according to his theory—a lexically determined filler that has been moved somewhere else—but from a mere trace, *t*, of that source. In 9, the empty category, *e*, Chomsky says, seems to arise not from an underlying α element (of some undetermined lexical status based on some discourse entity selected from the domain of all possible 'entities') as it might normally arise, but from the mere trace, *t*, of that α. That is, it is *t* itself (supposedly) which licenses *e* rather than α.

Example 9, together with its attendant analysis, is interesting in three ways. First, it shows that Chomsky is considering how the specific lexical (semantic) value of any given syntactic element is to be determined. Second, the analysis shows that he stops short of bringing the pragmatic facts—i.e., material objects, events, persons, relations, states of affairs, etc.—into play. Third, it shows that Chomsky apparently supposes it is possible that the meaningful source of every 'gap' (whether it is parasitic or not) is determined, to the extent that it can be, by reference to 'discourse entities' or lexically filled α's given somewhere else in the discourse. But TNR-theory shows that every conceivable predication of any kind that might be construed as a discourse entity is, in the absence of a determined material argument, exactly as indeterminate as any general predicate. Thus, Chomsky's approach consigns to itself a degree of indeterminacy that will make it impossible in a very general way to discriminate between better and not so good theories of grammar—a fact that is very well illustrated in the long-standing debates that have pervaded the entire Chomskyan paradigm from its start until now. Many would no doubt be inclined to agree with Yngve (1995) that there has been little discernible forward progress. It is even difficult to tell, as Yngve notes, what the general lines of direction are.

Of course, nothing said here disavows the relative independence of abstract symbolic forms from particular facts. On the contrary, TNR-theory shows *how* this independence is achieved and also *why it cannot be achieved at all without a scaffolding that is grounded somehow, somewhere, in the sensory acquaintance that we have with particular material facts as known through TNRs.* Therefore, no doubt is expressed about the abstractness of what Chomsky is calling logical form. However, the implicit premise that this level of abstractness can be attained or understood without instantiations of the true narrative sort is rejected. Chomsky avoids even the possibility of making any true narrative connection with actual facts of experience by regarding such facts as exactly on a par with the various fictions to which he often appeals. So long as *plausible* fictions are employed, it might be supposed that arguments could be fixed by additional verbal context in the manner of a well-constructed fictional novel. But to supply the level of determinacy that any single material argument could easily supply, owing to its connection to the whole of the space-time continuum, would require, as Haiman correctly intimated, 'acres and acres of context' (see footnote 1 above).

It comes out, therefore, that the world of experience needs to be taken into consideration in order to adequately test any theory of grammar. In a nutshell, what is missing from fictional data points cut loose from their indexical ties to the space-time world—i.e., from the 'isolated sentence' or other isolated segments of discourse—is just the particularity required to determine the nature of whatever grammatical relations or processes the analyst might wish to scrutinize, test, or establish. That determination is possible in TNRs precisely because things in the world are connected to each other. Objects that we encounter in a perceptual way (provided that we are not deluded or otherwise in error) have both a history and a future. As a consequence, with TNRs all the normal logical powers of inference apply in a relatively determinate way (a fact developed in detail in Part 2 below). We can predict to some extent what is likely to happen next in a spatio-temporal context and this is our concept of the future. It remains fictional and relatively undetermined until the future becomes the present in which case the fictional representations that we formerly entertained will turn out either to be TNRs or errors to some relatively determinate degree as seen when we look backward toward the past.

Fictional representations of the past are doomed forever to remain fictions if they are false, but if they are true, yet not known to be so, they can only be tested against TNRs yet to be experienced in the future. For instance, if a check bounces and we do not know why, we cannot return to the past to investigate the case, but we must do so in the present. If we discover that the deposit made on a certain date has not been credited to our account, the mystery of the bounced check may be resolved. What happens in this and similar cases is that we replace an error with a TNR. We thought the money was available but it was not. For lies the case is little different except for the relatively more serious involvement of the liar in deliberately making out a falsehood to be a TNR. Still, to show up the lie for what it is, a TNR (or series of them) is required. In fact, just as TNR-theory shows, fictions (including generalizations, metaphors, fantasies, and the like), errors, and lies, must all be compared with TNRs to make sense of them, and in the case of errors and lies to show them up for what they are. Evidently, genuine experiences of the present are known as TNRs in the past and are consulted to make sense of the rest. In fact, we know what we have experienced in the past only to the extent that we have represented it in the true narrative way by construing signs in an active bodily-defined present tense. According to TNR-theory, it is this fact, and *only* this fact, that enables any distinction at all between the past and the future of any conceivable observer-experiencer. The present, by contrast, is that phenomenal moment that seems to move from the past toward the future. It is where all of our indexical work must be done relative to the near future and the near past in deploying, construing, and interpreting signs.[8] To all of this connected stream, if just a single argument can be located relative to any TNR, the enormous powers of abduction, induction, and deduction (cf. Part 2) can be brought to bear. These inferential processes apply in the manner of hypothetical, probabilistic, and necessary mathematical reasoning. Remove the connections with the space-time world, or limit the predications to be examined to fictional cases, and essentially all of the powers of normal inference dissipate into relative indeterminacy from which they cannot, on the basis of any marshalling of merely generalized fictional data, ever be recovered. So, evidently, we should use TNRs as our main data for building linguistic theories and for developing our understanding of language acquisition, discursive processes, and intellect.

While it is true that merely plausible fictions will serve in some cases to illustrate grammatical relations fairly nicely, to rely on them as the main source of data for testing grammatical theory would be like an astronomer relying on imagined stars for the study of the material universe. Besides, the only source for whatever plausibility (an elusive quality at best) that any fiction (any imagined, abstracted, or generalized state of affairs) may ever achieve, as proved by TNR-theory, must be a better grounded TNR, or a plurality of them. The farther removed linguistic data are from such TNRs, the less plausible and the less determinate those data are bound to be. Are most linguists today not already convinced also that many of the touted test cases that have been proposed in the past lacked even a vestige of plausibility, e.g., do sentences like **Golf plays John* and *Colorless green ideas* . . . ring any bells? If so, should we not insist on TNRs as the primary data to be examined and invoked in studies of grammar?

Peirce (1861a, as reprinted in Fisch et. al. 1982:86) wrote:

> 'Whence is expression? What are the conditions of its existence? Expression perfectly free from the extraneous and accidental is mere meaning, which is of course no longer expression at all, because it will be shorn of its matter altogether.'

That is to say, it will be stripped of the material basis consisting of objects distributed in space-time. He goes on:

> 'Expression is form but mere form in its purity being deprived of matter is only form because the intellect regards it as such and not really. Meaning to become expression needs to be combined with that which expression is before it has any meaning, or Language.'

Here, I think, we find the idea of universal grammar and the essential basis of innate ideas in a nutshell, hence Peirce's use of the upper-case 'L' on 'Language'. He says,

> 'This Language is not matter but is a partial form which permits the existence of that ideal form Meaning to become a realizable form. The means therefore by

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[8] And this is not a mere 'Western-European' point of view as is sometimes contended. The constraints under consideration are first of all physical ones, secondarily physiological ones, and finally they are also cognitive and psychological ones. TNR-theory and the translatability of signs simply disallows the relegation of material and spatio-temporal considerations to some sort of unnecessary cultural overlay. That option is utterly closed off by TNR-theory.

> which meaning enters into language, is the determination, the *regulation* of language' (his italics).

Summing up, in this first part of my argument, I have endeavored to show what determination is as a universal requirement on all conceivable signs. In the sequel, I aim to show how the rules of language, especially in the sense of grammar, are built up. That is, how the regulation of Language in general (i.e., of universal grammar) is effected, and how this regulation is applied to the case of a particular language (i.e., a particular grammar) so that it may be acquired and deployed in discourse and thought.

Part 2: The Theory of Abstraction

As in the preceding part, here too, the Peircean method of 'exact logic' (cf. Peirce 1861a, 1861b, 1897) is applied. By that method a hierarchy of true narrative signs is generated consisting of 30 distinct systems. Following Peirce's 'logic of relatives' (1897), 'classes' or 'sets' viewed as timeless mathematical abstractions are distinguished from 'systems' viewed as dynamic correspondences of tensional relations and possibly moving parts. The first 10 systems here are similar in some respects to the 10-system hierarchy that Peirce generated himself (known as his 'tetractys'; cf. Peirce 1897-1910 in Hartshorne and Weiss 1932:146-152), but my system is developed in a different way and for a different set of applications. I think that my own invention does no violence to his basic concepts, but *that* in itself is a secondary consideration. The main purpose is to offer a theory of sign acquisition and development that will afford a multitude of empirically testable hypotheses to be derived from it in a deductive manner. For some preliminary results of that kind, see Oller (1995), and footnotes throughout the following pertaining to A-theory (but especially that part of it designated as L).

Based on TNR-theory it is assumed here that the sign-user[9] must first gain an acquaintance through perception with any particularity that might be signified in any manner. A particularity, as shown above, is a certain kind of logical object. It is always complex in its part-whole relations within itself and unique in its relations externally to other objects, classes, and signs. It may be a plurality, but it cannot be a zero or a purely abstract general. Hence, there is a definite starting point for any sign-user who is (at least while still alive) actually always located at a certain position in the space-time continuum in a genuine material body.

Further, it is assumed that the limit of abstraction at the high end is the sort of abstractness associated with a fully generalized symbol. This limit may be assumed on account of the fact that any fully general abstraction, though it may be derived by an abstractive inference from another fully general abstraction, and though the pair may be two distinct things, still, the derived abstraction cannot be of any higher level of abstraction (or generality) than the one from which it was derived (as was noted by Peirce 1861a:84) because the former abstraction was already at a limit. Therefore, the theory of abstraction must produce a defined limit beyond which are found an unlimited multitude of fully abstract sign systems and yet which can never rise above that limit of abstractness already achieved. This high limit of abstractness engages the degree of absolute continuity which Peirce defined (cf. Putnam & Ketner 1992) as the omega (Ω) limit where the objects that are generalized achieve such continuity that they actually melt together.[10] Between such limits, the signs of interest must be found.

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[9] A human infant is the case of greatest interest throughout, but any animate biological organism could as easily be examined and located for its level of intelligence within some phase of the system proposed.

To generate them, per A-theory, two abstract trichotomies of Peircean concepts are employed. First, the traditional trichotomy of **icon**, **index**, and **symbol** (see Figure 8) is construed to represent a kind of temporal cycle. It is supposed that the sign-user begins with an iconic sign (element number 1 in Figure 8 involving sensation, perception, and imagination (including sight, hearing, touch, smell, taste, and combinations of these). From there he or she progresses to an indexical sign (element 2 of Figure 8) involving a movement of one or more material objects relative to and possibly including the body of the sign-user and, of course, the icons of those objects. Then, the user arrives eventually at a symbolic sign (number 3 in Figure 8) which is essentially a mental conception. The meaning of that conception (semantically known) is relatively independent of perceptual or bodily acts, though it invariably involves a history of indexical associations (syntactically known) between particular objects shown in linguistic, gestural, and object icons (pragmatically known).

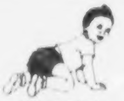
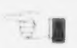
1 ICON	2 INDEX	3 SYMBOL
		The baby is crawling.
(SENSATION)	*(ACTION)*	*(DISCOURSE)*
Raw fact or "firstness" as known to an observer or patient	**An action or "secondness" as performed by an agent or actor**	***Representation or "thirdness" as created by an intelligent actor/knower***

Figure 8. A summary of some of the distinct meanings associated with the Peircean trichotomy of **icon**, **index**, and **symbol**.

The elements of this first trichotomy were defined and illustrated by Peirce in a great many ways, but the following summary (together with the one given in Figure 8) will suffice for the purposes at hand: an **icon** can serve as a sign only because it really resembles its object (as does a sensory percept); an **index** is a sign only because it is really connected to its object (as is an act of pointing to an object or as any bodily movement is associated with the body moved); and a **symbol** is a sign only because it is habitually, conventionally, or necessarily (by rule or law) associated with its object (as is a name, description, clause, a bit of discourse, concept, or conceptualization). The unsurprising thesis applied in this paper and the theories connected with it is that sign-users begin with sensory perception (manifested mainly in iconic signs), proceed to bodily acts coming increasingly under volitional control (manifested mainly in indices which are linked to icons at one or both ends), and then to conceptual abstractions that are nearly completely subject to volitional control (manifested mainly in symbols that are linked to icons via indices). Also, it will surprise no-one to notice (i) that percepts are at a limit of particularity (as far as signs can represent particulars), while (ii) bodily acts are intermediate between particular manifestations of objects and

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[10] A physical analogue of this possibility was predicted by Einstein. It was recently discovered by a team of physicists at the University of Colorado. Supercooled gaseous rubidium atoms were found to slow down to such a degree that they lose their separate identities and melt into a kind of indistinct mass. The latter is referred to loosely as a 'superatom' which has properties similar in some respects to the separate atoms of which it is composed although those atoms no longer exist as separate entities (McDonald 1995).

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general abstract concepts, and (iii) fully abstract concepts are at a limit of generality and abstractness.

Second, a Peircean trichotomy of **abstractive operations** is invoked by A-theory. This latter trichotomy is discussed in relatively fewer places in Peirce's published works than the trichotomy of icon-index-symbol, but it is refined and applied here to form a general theory of language acquisition, grammatical development, and the growth of discursive inference as represented in the three parts of A-theory—L, G, and D. The second Peircean trichotomy consists of the operations **discrimination**, **prescission**, and **hypostasis**. While my characterization of these concepts is faithful, I believe, to Peirce's intention, nothing of importance to A-theory (or its parts) hangs on that supposition. In fact, I offer a way of looking at these three abstractive processes that extends the concepts (judging from Peirce's published works[11]) and conjugates them with the former trichotomy which Peirce identified as the most important of all those that he proposed (Peirce 1902:187). It is in the conjugation of these two trichotomies viewed as interacting cycles, as will be closely argued, that the results of greatest interest arise.

As noted above, it is important to think of the distinct kinds of signs generated by A-theory as *dynamic systems* rather than as *static classes*. As will be seen, every sign-system throughout all the phases of A-theory involves the dynamic linking of signs of the three main kinds (icon-index-symbol) with the material bodily objects of the space-time continuum (and relations between them) as mediated by active agent(s) consisting of the burgeoning sign-user and the larger sign-community. It should be noted also that the central element of A-theory is the development of the socially guided and regulated system of one or more languages.

Discrimination, on my reading, is the process of abstracting a sign of the object to be deployed right where the object appears to be, whether the object is stationary relative to the observer or moving. Figure 9 sums up the process. The setting of the boundary around the perceptual sign of the object as distinct from its spatio-temporal context is the essence of the process. In it, a perceptual sign of the object is formed and is construed to be the object. In fact, the percept is deployed in such a way by the user that it is superimposed on top of the object right where that object appears to be. However, in this and in all abstractive processes, it is the sign that is derived from the object by the user. The object is never derived from the sign.[12]

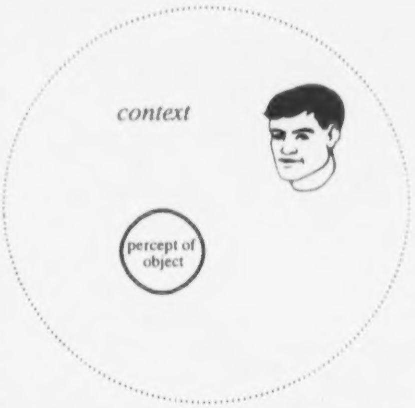

Figure 9. A schematic view of the abstractive process of **discrimination**.

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[11] It should be noted that the bulk of his work remains unpublished and inaccessible to me, so I do not know that he himself had not developed somewhere else in his writings essentially the ideas that I present here. I do know that I did not get any more of the theory of abstraction directly from anything Peirce wrote than the three basic processes. Even these I have defined and extended to the purpose at hand.

[12] Of course, if we think of manufacturing or other creative acts as involved in producing material objects,

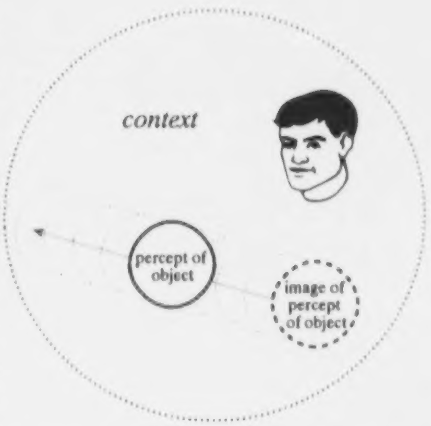

Figure 10. A schematic view of the abstractive process of **prescission**.

Prescission[13] is the process of abstracting the sign of the object from its location in space or in time by moving (a) the object, (b) its **prescinded sign**, or (c) the body of the observer. Such an act will produce a spatial or temporal separation of the sign from its object within the particular spatio-temporal context where the object is perceived to be. An easy way to conceptualize the process of prescission (and the way shown in Figure 10) is to move an object a short distance toward a new location. Now, imagine it where it was just before it was moved. If the percept of the object is remembered and imagined to be in the former location, the sign (in this the memory of the percept in the former location) is a prescinded image of the object. The object itself is now represented by a new percept in its present location. In this way (as seen in Figure 10) the process of prescission is shown as the near history of the spatial dislocation of an object. Prescission can also be achieved by the agent's moving of his or her own body, e.g., near or around the object, so as to effect a temporal prescission of a whole series of changing percepts of the object while the object itself remains as and where it was before the agent started moving. In either way, a spatio-temporal series of images is prescinded from the percept of the stationary object.

With prescission, just as we saw in the case of discrimination, the sign is still abstracted (discriminated in that case, prescinded in this one) from the object, never the reverse. Abstraction, it comes out, moves away from material objects toward increasingly abstract signs—never in the reverse direction. This asymmetry is shown in the indexical sign (→) added to Figure 10. The arrowhead points toward the future, from the past, and through the present location of the object (i.e., its present percept). This whole series of images, therefore, is the prescinded sign of the object. It is, in fact, an indexical sign of an iconic sort. The direction is crucial, as in the use of indices in general, where two ends are always distinguished from some determined point of view.

in an important sense, *those* objects usually are derived from one or more signs. But manufacturing in that way is only involved in the process of discrimination to the extent that the sign-user (as proved in TNR-theory) actually creates the sign-instance (the percept) that is superimposed upon the object in the discriminative act. However, it is only the special form of this sign-instance as an occurrence in space and time that is bodily produced by the sign-user. The sign-user does not, as TNR-theory shows, produce or manufacture the perceived object. Indeed, even a process of manufacturing or creation of a product involves the imposition of a sign upon matter in the sense of imagination. That aspect of the deployment of the sign, however, is not the central element of the discriminative process. The main element in discrimination is the abstractive part where the content of the sign is found *in the active perceptual bounding of the material object*. Thus, conceived, discrimination is an abstractive act of intelligent sign construal, or interpretation and deployment, not an act of manufacturing in the sense of producing a material object.

[13] This is a term invented by Peirce, apparently, which in its verbal manifestation is the term **prescind**. Here, and throughout, I use what was, I believe, his preferred spelling of the term though his editors have often played havoc, it seems, with his intentions sometimes rendering the term as 'prescision' sometimes as 'precision' and sometimes as 'prescission'.

The end pointing toward the present state of affairs (before the view of the observer/agent) is defined as the **proximal** end of the index while the more abstract end, the one joined to the memory of the percept, is defined as the **distal** end. However, since every index by its very nature must be construed relative to the present of some observer (or some plurality of them), it is always the case that prescission itself takes place in a proximal context construed as present to the observer/agent. Thus, in every prescinded sign, the past and future are near-time-zones falling within the vaguely defined context of the present.

Hypostasis[14] is the abstractive process whereby the sign for an object is abstracted to a limit and generalized in such a manner as to render it applicable to any conceivable context where the sign might be construed as representing its object. At this level of abstraction, the sign is so generalized as to apply to all possible occurrences or appearances of its object in whatever contexts may resemble the one or ones from which the sign was abstracted. Upon this view, unlike various other theories of abstraction, which in order to conserve space I will not review, the hypostatic sign is not something abstracted so as to ignore, forget, or destroy particularities of the object or its context, but, rather, it is the particularities themselves (per TNR-theory) which provide the only possible basis for the abstraction of the meaning of the sign. Hence, the sign abstracts particularities of the object, giving it a discriminative aspect at its origin. Also, as a result of movements either of the object or of the observer within the vaguely defined present context, the prescissive sign is determined. These aspects, together with the abstracted concept of the logical object, as schematized in Figure 11, constitute the generalized meaning that forms the hypostatic sign.

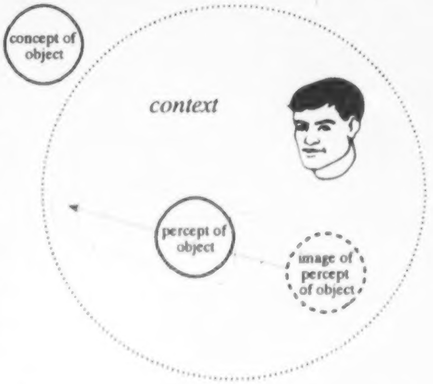

Figure 11. A schematic view of the abstractive process of **hypostasis**.

Hypostasis involves regarding the sign of the object as if it were a kind of timeless object in its own right that can be projected into any particular context like the one, or ones, from which the sign was originally abstracted. Thus, the abstracted sign has a **pragmatic** aspect defined by its particular argument (its object). It has a **syntactic** aspect defined by its particular sequentially connected history of appearances, and it acquires upon the hypostatic phase of abstraction, a purely **semantic** aspect as a meaning (or conceptual object) in its own right. Again, it is useful to stress the direction of the development of abstraction away from the material spatio-temporal context. Hypostasis, like prescission and like discrimination, both of which are involved within it, remains asymmetrical in the same way that they have been. Hypostasis will produce a fully abstract sign from a prescinded (formerly already discriminated) one, but it cannot produce either the object or the context. The particular spatio-temporal context(s) of experience must precede the hypostatic operation in the same manner that the movement of the object or agent must precede prescission and that the inertial existence of an object must precede discrimination.

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[14] This last term was not used by Peirce, though he did use *hypostatic abstraction*. However, he also called the concept *dissociation*, a term later abandoned in favor of *hypostatic abstraction*.

The conjugation of the two cycles is shown in Figure 12. There the first nine sign systems of L-theory appear with preliminary and rough descriptions attached. Those descriptions will be greatly refined as we proceed. The underlined portion of the description, however, in each cell shows that the elements across the top row (the iconic signs) are monadic construals of what are really triadic signs in each case, while the next row (the indexical signs) consists of what are in each case dyadic construals of a triadic sign system, and only on the bottom row (the symbolic signs) do we come to fully triadic construals of triadic systems of signs.

Abstractive Cycle⇒

Sign Cycle⇓	DISCRIMINATION	PRESCISSION	HYPOSTASIS
ICON	1 Discriminative icon Percept → Object	2 Prescissive icon Image → Percept	3 Hypostatic Icon Concept → Object
INDEX	4 Discriminative Index Icon → Image or Percept	5 Prescissive Index Image → Percepts	6 Hypostatic Index Concept → Images or Percepts
SYMBOL	7 Discriminative Symbol Linguistic [sign] → Percept	8 Prescissive Symbol Linguistic /sign/ → Image(s)	9 Hypostatic Symbol Linguistic {sign} → Object(s)

Figure 12. A schematization of the conjugation of the sign cycle with the abstractive cycle—the first nine systems.

It is important that the trichotomy of abstractive processes—discrimination, prescission, and hypostasis—like the trichotomy of signs—icon, index, and symbol—is construed as a processual cycle such that discrimination precedes and is involved in prescission, which precedes and together with discrimination is involved in hypostasis. What is more, looking at the signs down the columns, the discriminative phases are all essentially iconic (anchored in percepts or in the object itself), while the prescissive phases are essentially indexical (where it is the act of construal and deployment itself that is central), and the hypostatic phases are essentially symbolic where it is the regular, habitual, or conventional use of the sign that comes into the central and dominant role. It can also be seen from Figure 12 that the product of each phase is the basis for the next. That is, each phase takes the outcome of the prior phase and by adding something to it creates its own product which is passed on to the next phase. Thus, it is that the product of the iconic cycle (the first conjugal row of Figure 12) is the very element plus its indexical application with which the indexical cycle begins (the second row). In turn, the product of the indexical cycle is the very element plus a symbol, with which the symbolic cycle begins (the third row).

As the abstractive process is extended beyond the third row of elements, the entire sequence of 30 sign systems unfolds as shown in Figure 13. There, the starting point of the first phase of the first abstractive cycle (each one being shown as a three part rise to a limit followed by a rejoining with the time-space continuum on the beginning of the next cycle) is a material object or state of affairs in the space-time world. Prior to the starting point for the first discriminative phase, as is shown (see Figure 13), there must be a material space-time continuum pre-existent before the child (or other biological organism appears on the scene). That prior material state of affairs is the proper zero (0) phase of L-theory on the bottom tier of the system. When the sequence of 10 phases on that tier is completed, the 10th phase is both the last phase in L-theory and the zero phase (or logically prior point of origin) for G-theory (hence the number 10 written below the line on the second tier). Similarly, the 20th phase of G-theory is both the logical outcome of *that* 10-phase series and the zero point of origin for D-theory as is shown by the number 20 written below the line on the third tier of Figure 13.

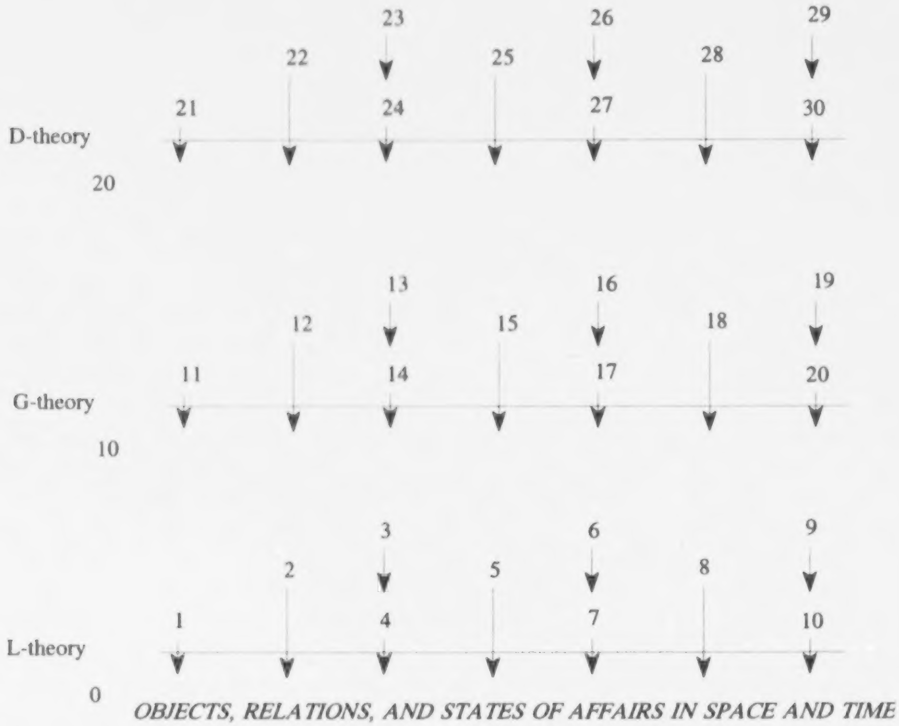

Figure 13. A-theory (the theory of abstraction) as manifested in L-theory (the theory of language acquisition), G-theory (the theory of grammatical development), and D-theory (the theory of discursive inference or intelligence).

Upon the 10th phase of L-theory (the bottom tier of Figure 13), a semantic limit of complete generality is reached with the deployment of the first fully abstract symbol. In this way L-theory is bounded in a principled semantic way. At phase 10, the symbol system is **semantically reflected** onto syntax, thus initiating G-theory (see the second tier of 10-phases in Figure 13). At phase 10, the abstractive process having come to a limit of semantic generality that cannot be exceeded, shifts in its focus to the indexical analysis of sign structures themselves—the essential problem of syntax. Then, three additional symbolic cycles proceed through G-theory until the abstractive process solves the syntax of sign structures to a limit of diminishing returns with respect to the specification of particular arguments and their relations. Thus, at the 20th phase, the limit of diminishing returns punctuates G-theory. There a **syntactic reflection** occurs and the abstractive process shifts its focus to holistic pragmatic systems of signs.

This does not mean that the sign-user now will neglect syntax and semantics, but with the problems of those domains solved to a limit of full abstraction on the side of generals and to a limit of diminishing returns on the side of particulars, the focus shifts to the matter of discursive inference—reasoning through signs about logical objects. The 21st phase turns, then, to examine the logical relations of fully developed signs in their pragmatic aspect. Thus, D-theory is inaugurated as shown in the third tier of Figure 13 (see the 10 phases at the top).

D-theory also, however, reaches a definable limit on the 30th phase of A-theory. This corresponds both to the 8th full symbolic cycle of discrimination, prescission, and hypostasis and the 10th complete abstractive cycle with the iconic and indexical cycles included. At phase 30, D-theory is punctuated by the development of a relatively mature deductive reasoning which leads inevitably to a conception of continuity (alias generality) applied with its full power in discursive inference. Thus, the whole of A-theory is completed. Beyond the 30th phase, essentially no new sign systems need to be developed because complete generality of the system has already been attained and particularities can be expressed to a limit of diminishing returns. Of course, discourse and discursive reasoning do not stop but go on until the organism expires.[15]

It is supposed that the system normally works in the following way. The newborn baby works first with whatever object situations present themselves when he or she comes into the world. From there throughout the 10 phases of L-theory, the normal child works up to the level of semantic generality. Then, on that same 10th phase of abstraction, a limit of semantic abstractness is reached and the system is reflected onto to its own signs throughout the ten phases of G-theory. Then, upon the twentieth phase a limit of particularity is normally reached where little or nothing would be gained by carrying the syntactic development any further. At that point, the more advanced phases of discursive inference and logical reasoning as seen in D-theory are initiated and, for normal cases, carried to a limit of full deductive power. Thus, L-theory aims to explain how the child gets to the first meaningful sign. G-theory picks up from there and goes on to sign systems that are not only fully general, but also as explicit with respect to particulars as they need to be relative to the communal use of the signs in question. D-theory carries on from there to the capacity to reason from particulars to generals, from pluralities of particulars to generals, and from generals to particulars of all kinds including pluralities.

With the foregoing overview in mind, the exposition proceeds from the first phase of L-theory through its 10th phase, and so forth through G and D. As a matter of convenience a whole sign system may often be spoken of as if it were a single sign. This is not really so. Though the construction of the first sign at each level of abstraction really is construed to be a singular event, it is supposed that many signs of each kind are produced at each phase of abstraction. For instance, upon the first phase of the iconic cycle of L-theory, although only one discriminated icon (percept) can be produced at a time, these can be had in such rapid succession that a multitude can be produced in a short time by repeated applications of that same phase of the iconic cycle.

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[15] Figure 6 is merely a summary of the whole system, but it does show that every one of the sign systems produced eventually (assuming that the process does not bog down due to some abnormality) gets linked back to the material space-time continuum as is required by TNR-theory. The only sign systems that are not directly indexed against material objects in the space-time continuum are the hypostatic signs (these being numbered 3, 6, 9, 13, 16, 19, 23, 26, and 29). The reason that these signs are not directly linked to the material world is that they are hypostatic. They are the only sign systems in the whole series that are abstracted quite completely from their space-time contexts, but even these elements retain their actual history of connections to prior contexts in space-time through the prior sign systems which lead up to them and with which the hypostatic signs are associated. Also, upon each subsequent phase of abstraction, each hypostatic sign system is reintroduced in an enriching way back into the material spatio-temporal stream of experience by the sign-user. As shown in Figure 6, this occurs through an index (or complex of them) on phases 4, 7, 10, 14, 17, 20, 24, 27, and 30. It also comes out that the punctual phases (initial and concluding) of each theory-complex (L, G, and D) are always linked to the spatio-temporal continuum through an index or complex of them on both ends (again, as is strictly required by TNR-theory).

To begin with, the iconic cycle of abstraction first produces a **discriminated icon**—a percept of the object of that sign. It matters little to the system of signs what the first object might be that the baby settles its attention upon. What is to be noted about the sign produced, however, is that it is a particular kind of monadic predication about its logical object. The percept appears to be right where the object is. In fact, at this stage, the infant can only regard the percept *as the very object itself.* If the child is not hallucinating, suffering from an illusion, or the like, no harm is done and the monad is merely a relatively primitive and undeveloped form of a TNR. Ordinarily, the sign is not degenerate in the manner of a fiction, error, or lie, however. In fact, the percept purports to represent an object just where the percept appears to be, and usually, that is exactly what the percept delivers. Its primitiveness resides in the fact that the percept is not distinguished from the object, nor does the baby have any distinct sense of its own indexical act that connects the percept with the object. Hence, two elements that are really part of the picture are neglected by the infant. Signs of this kind (**sign system 1**) may be thought of as superimposed upon the object to such a degree that the sign is regarded as one with the object—thus, from a grammatical point of view the sign produced is a monadic predicate with the object of the sign as its only argument (i.e., where the percept is the predicate of that one argument—a monadic predicate). With respect to inference upon this cycle, the child can only suppose that a materially extended object really is where the percept seems to be in its spatio-temporal context and that it ought to be tangible.[16]

To represent signs of this kind, it will be convenient to designate the icon of the object by the lowercase letter 'o'—iconically calling to mind the boundaries of the object (in its material status designated with an uppercase 'O') as made out by discrimination (see Figure 9 above). This iconic 'o' then, which is signified through a percept in the experience of the baby at a particular time and place is essentially an **etic** appearance (following the long-standing linguistic convention; Pike 1943, 1947; Headland, Pike, & Harris 1990). Therefore, let the perceptual icon 'o' be enclosed in square brackets thus, [o]. The percept is also a sign of a particular nonrepeating perceptual appearance. To show this particularity a subscript may be added, thus, $[o]_i$. These three elements, then, respectively capture the triadic nature of this primitive monad as the most primitive triad of TNR signs in the experience of the infant. In reverse order, the three elements of that primitive triad are: (3) the discrimination itself, shown in the brackets, the highest abstractive level yet achieved—hence the semantic aspect of the burgeoning sign; (2) the syntactic (space-time reference to a particular nonrepeating context), shown in the subscript; and (3) the pragmatic or material aspect shown in the enclosed letter 'o' which gives an iconic view of the object itself. Dozens of these perceptual signs can be generated by the acts of the infant in relatively short order. We may note in passing that these signs provide the essential basis for consciousness and the conception of the present tense.

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[16] Here, the theory achieves its first modest empirical success. Bower (1971) showed that many prior theories about the integration of the senses depending on learning were wrong. He found that neonates seemed to expect a visible object to also be tangible. That result is immediately predicted by the L-theory under development and so the first phase of abstraction finds an empirical foothold in the psychological literature.

It is assumed that during the earliest phases of its experience the baby is hide-bound to deal with the things that it runs into or that poke, chafe, and move it in a bodily way. Therefore, the baby is driven mentally by the conflicts of the material experience to push its signs to the highest and most powerful level of abstraction that experience can justify. Peirce (1861a:85) wrote:

> 'Nobody can think pure abstraction on account of the necessity of doing it a particular time etc. The abstraction to be realized must be a form of the thought, passion, or sensation in which it is realized . . .'

But, owing to the great benefits of abstraction, we may suppose that the tendency of every burgeoning sign-user is to carry the sign to the highest attainable level of abstraction per the present stage of intellectual development of that sign-user. In any case, a natural disequilibrium recurs in whatever surprises the baby may encounter, whether pleasant or unpleasant. These literally push, pull, and otherwise compel the infant to find new and better ways of fitting signs to objects.

Next in the hierarchy of TNR signs, the prescissive cycle of abstraction applies to the percept (i.e., to the perceived object). Owing to movement of the object, or of itself, the baby discovers the **prescinded icon (sign system 2)**. To take a case that is easy to conceptualize (see Figure 10), if the object is moved a short distance from its former location, an image of the object can easily be imagined where the object was previously located. This image is a prescinded icon, or, an image of the former percept that was in that same spatial location only moments ago. This image is barely less primitive than the monadic percept. It consists of a dyadic indexical icon of the object. It may be thought of as a line connecting the former location of the percept with subsequent locations along that line of motion. Since the object really was in some or all of the locations where the image (prescinded icon) now is situated, the image is true of a former state of the object. That state, known as the prescinded icon or image of the object, is linked with the perceptual icon by a spatial (or in cases where the agent moves, a spatio-temporal) index. It will eventually provide the essential basis for the development of past and future finite verbs, though the baby cannot know this yet.

On the prescissive phase of the icon, its indexical aspect is taken for granted. What is in focus, at least in respect to the abstractive process, is the prescinded image of the object. In fact, that image-icon is derived from the perceptual-icon by the indexical operation of prescission. From a grammatical point of view, the sign produced at this second iconic phase of abstraction is a dyad with a perceptual icon (a discriminated icon, where the object is) situated at the proximal (present-time) end of the line. At the distal, future-time end there is an imagined icon of the percept and at the distal past-time end there is also an imagined icon of the percept. For every such case, let the perceptual icon be designated as [o] per the notational conventions already introduced. Then, and let the prescinded image of that percept be designated by the index that moves the image away from the object as shown in the sign ←, which points back to the percept of the object and which joins that percept to the prescinded image of it, thus, [o] ← /o/ or equivalently, we may write /o/ → [o]. Here, as before, an old-time linguistic convention for designating an **emic** element as contrasted with an **etic** one is invoked. This conventional designation of the second sign system of L-theory shows its dyadic character as involving the form of an object, in this case shown as /o/, as prescinded, shown in the directional index, →, from the object itself as shown in its percept, [o].

The third and final phase of the iconic cycle of abstraction produces a **hypostatic icon (sign system 3)**. This conceptual icon involves a further abstraction of the prescinded icon so as to produce a fully abstracted icon (a primitive symbol) which is relatively independent of its former spatio-temporal context though derived directly from it by an operation of abstraction performed by the sign-user. Such a hypostatic icon consists of the prescinded icon generalized to any conceivable spatio-temporal context where the perceivable object might be construed to appear. It could be said that the hypostatic icon is a concept (symbol) of the object itself, drawn from the material location where that object may now exist, or has existed in the past (provided that the prior representations were of the TNR variety). Or equivalently the hypostatic icon can be construed as a fully generalized icon of the object with respect to the particular spatio-temporal context where its perceptual icon may now be discriminated. To capture this now fully triadic monad, another old convention, this one dating at least to Nida (1949) is invoked. Let the concept of the object be designated as {o} where the curly brackets (or braces) suggest its abstract semantic status within the developing system of signs. It should also be noted that this notational device can always be read as an abbreviation for the richer and more complete designation indicating the history of the sign thus $\{/[o]_{i,\, i+1,\, \ldots,\, i+n}/\}$. That is to say, before the sign was a hypostatic icon of its object, {o}, it was a prescissive one, which may be abbreviated as /o/, and before that it was a discriminated one, [o], or actually a series of them as shown in the attached subscripts, $_{i,\, i+1,\, \ldots,\, i+n}$, where $_i$ is any arbitrarily noted appearance of the object and $_n$ may be any finite number including zero.

On the hypostatic phase of the first abstractive cycle, the concept of the object is recruited for duty as a general sign in all similar contexts. The object actually has all of the particularity while the sign of that object has all the generality of the case. The hypostatic sign does have a particular syntactic history in the experience of the sign-user, and even in the community of users, but its particularity is limited to that history which includes its particular association(s) with some particular material object(s). Otherwise, every sign is generally applicable to all possible objects that meet its semantic requirements. Thus, this third system of iconic signs is a triadic monad consisting of (1) the object itself (shown in the letter 'o') as associated through (2) a mental act of the sign-user with its prescinded icon, /o/, and then with (3) its abstracted iconic concept {o}. Such is the grammatical structure of the hypostatic icon. And, what inference will it sustain? The predicted inference the baby would be expected to make is to search for a perceptual instance of the object (on the next, the 4th phase, of abstraction) right in the spatio-temporal context from which the hypostatic icon was abstracted. That is, the expectation of the infant ought to be that the object will appear in the very locations (including any spatio-temporal trajectory) where it was most recently observed in the near-to-hand spatio-temporal context.[17]

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[17] Again, L-theory gives correct predictions in relation to the research of Bower described in his popular 1971 article. He found that babies younger than 16 weeks looked for an object either in the spatial location where it was last noted, or along the moving trajectory where it was last noted. L-theory further predicts the

Thus, the iconic cycle of abstraction is completed on the hypostatic phase (phase 3) of the icon and its final product is passed to the indexical cycle.

The first phase, then, of the indexical cycle, or the 4th phase of the overall theory, begins with a hypostatic icon which may be re-associated with the stream of experience through a **discriminative[18] index (sign system 4)**. That is to say, any hypostatic icon abstracted from a percept may be reapplied as a TNR via one or more particular indexical acts of the sign-user to identify any particular perceptual or imagined (remembered or anticipated) instance of the object of that particular hypostatic icon. While it is true that at least one index is involved in each of the monadic sign systems of the iconic cycle (row one of Figure 12), *those* indices are not consciously taken into consideration except as backgrounded context (Peircean thirdness; see the third column of Figure 8 above) for the monad that is in focus (the Peircean firstness) in the foreground (the Peircean secondness) of each case.

At the 4th phase of abstraction, by contrast, the index comes to be the conscious and central element of the sign process. Each of the indices at this phase occurs one at a time relative to any hypostatic icon that may be deployed. Each deployment of any such hypostatic icon via a discriminative index occurs as if *de novo*. It is a kind of deliberate search for the object in its spatio-temporal context (cf. Figure 11 above) from which the hypostatic icon was abstracted. Each such act is marked off from others by the need to form the abstractive intention to hunt for the object through the benefit of the hypostatic icon at the distal, past tense, end of the index, then to carry out the search (through the indexical act of linking the hypostatic index with a present-tense state of affairs), and finally to determine whether or not the search was successful by examining the icon at the proximal, present-tense end of the index to see if it matches the one at the past-tense end. All this results in the necessary consequence that every indexical act is a particular one distinct from others.

The infant has in mind a particular hypostatic icon of an object. The infant reasonably expects to find that object where it has recently appeared inertially (in a relatively steady condition) in relation to its surroundings. Therefore, the child looks for the object either in a spatial location where it was observed previously, or along the trajectory of motion where the object was previously observed. Suppose the search for the object succeeds. The resulting sign in each such application by the sign-user is an indexical dyad of a more developed kind than the one formed at the prescissive phase of the icon. At the most abstract or distal end of the discriminative index is the hypostatic icon, {o} →. The hypostatic icon provides the essential basis for the search.

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surprising finding of Bower that prior to about 12 weeks of age the infant appears to be unable to distinguish a temporal series consisting of multiple percepts of a single object (e.g., multiple appearances of the same material object such as the child's own mother) from a simultaneous appearing spatial arrangement of multiple percepts associated with similar logical objects (e.g., multiple simultaneous mirror images of the child's own mother).

[18] Note that on the discriminative phase of the iconic cycle, a percept has already been discriminat*ed* by the time the sign-user becomes aware of the object. However, with the index which is actively deployed on the first phase of the indexical cycle, the indexical act itself is discriminat*ive*. That is, the deployment of the index actively involves the sign-user in a way that a perceived object does not. In the discriminative phase of the iconic cycle the sign-user largely plays the role of a patient and is acted upon by forces emanating from the material object (light or sound waves, inertial forces, gases that may generate smells, etc.), whereas in the discriminative phase of the indexical cycle, the sign-user steps into the active role as agent and the sign itself is relegated to the role of a grammatical patient.

If it gets linked to its object, a new indexical TNR will result. If the search fails, however, the resulting sign will remain a fiction of a special kind. Consider each alternative outcome in its turn: (1) if the search fails, at the proximal end of the index, that is, the end projected into a particular present-tense spatio-temporal context which is being represented by the infant, there will appear only the prescinded image of the percept of the object sought after—thus, $\{o\} \rightarrow /o/$, (and baby will be mildly surprised), but (2) if the search succeeds, there will be a discriminative icon (a percept) of the object itself at the proximal end of the index, thus, $\{o\} \rightarrow /o/ \rightarrow [o]_i$ (and baby will be pleased and not much surprised).

Say, for instance, that the baby has recently perceived a certain object in a particular location (or moving along an observed trajectory), and, say further that the icon of that object has been discriminated, prescinded, and hypostatized. Now, the baby looks for the object where it was last seen.[19] This deployment of the hypostatic icon occurs via a discriminative index. What is sought at the proximal end of the discriminative index (in the baby's present context) is the object itself. If the index actually settles there on a percept of the object, the search for the object succeeds, $\{o\} \rightarrow /o/ \rightarrow [o]_i$ (baby is not surprised). Otherwise, if the baby finds only a remembered or projected image of a percept, $\{o\} \rightarrow /o/$, the baby will be surprised and disposed to try other locations or trajectories in space-time where the same or a similar icon may have been previously observed. Each of these new search efforts will also involve a distinct discriminative index. When a match is achieved, the discriminat*ive* index results in what may be legitimately called a **discriminat*ed* index**. Grammatically such a sign is a monadic dyad, i.e., each one is regarded as a single significant act. However, the developing temporal series of these will eventually provide the basis for the prescissive index.

The entire system of discriminated indices will soon produce a vastly greater number of signs than there are distinct material objects in the child's actual experience. That is, the baby will discriminate many percepts in distinct locations (or trajectories) that are really distinct perceptual manifestations of the same object in different segments of time and/or space. These temporal segments will be bounded, the theory predicts, precisely by the distinct discriminated indexical acts that signify them. Such indexical acts, however, in the case of animate objects that move around on their own, or inanimate ones that *get* moved around by animate agents or material forces, will form a closely articulated, continuous yet non-overlapping, temporal series of discriminated indices (i.e., these specially noted percepts) extended over various spatial locations and trajectories. Or, in the case of similar objects located in distinct locations in space (e.g., say, two or more identical-seeming objects in the same field of perception), the separate indexical acts that mark them will also form a temporal series of discriminated indices (specially *noted* or indexed percepts) though more than one perceived object of the series may be simultaneously present in the field of perception. That is, in this latter case, the noted percepts may sometimes overlap temporally, which cannot logically happen in the case of a temporal series of percepts associated with an individual object. In either case, if the distinct locations in space and time should be linked by the prescission of any one of the discriminated indices, as seen in Figure 14, the first **prescinded index** (or the **5th sign system**) appears. That is, if the baby keeps in mind the first successfully discriminated index (i.e., a certain one of the noted percepts) in a given series, $\{o\} \rightarrow /o/ \rightarrow [o]_i$ (equivalently, $[\{o\}]_i$), but loosens it at its proximal end to re-attach it to the next percept in the temporal series produced by the same object, i.e., $\{o\} \rightarrow /o/ \rightarrow [o]_{i+1}$ (or $[\{o\}]_{i+1}$), then uses the same pivot point again in the same way to incorporate it into the now dynamic and moving index. Thus, a series of temporally linked percepts of the same object will appear (as shown in Figure 14), and the last item in the series can be designated as $\{o\} \rightarrow /o/ \rightarrow [o]_{i+n}$ (or $[\{o\}]_{i+n}$).

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[19] This result was empirically demonstrated in the research of Bower (1971) at about 12 weeks of age for the infants he studied.

Now, if the series of percepts noted in this way is connected with an individual object as shown in Figure 14 (under the time line), the entire series of percepts joined in the prescinded index, designated as $/\{o\}/$, will now appear to be connected continuously throughout, from the origin at $[\{o\}]_i$ to the terminus at $[\{o\}]_{i+n}$. Thus, the prescissive indexical system will provide the basis for condensing many series of discriminated indices into a more compact and smaller number of prescinded indices—i.e., each of the latter being a singular series of noted and indexically linked percepts that are regarded, whether correctly or not, as percepts of the same object (Figure 14).[20] Perhaps it should be noted here that whereas the series of connected images in a prescinded icon (sign system 2) is owed (if the sign is a TNR) to the actual connections of the material continuum itself, the connections established by the prescinded index (sign system 5) are owed to discrete sign acts of the sign-user. Thus, the latter connections are materially continuous by virtue of their relation to the bodily agent who produces them.

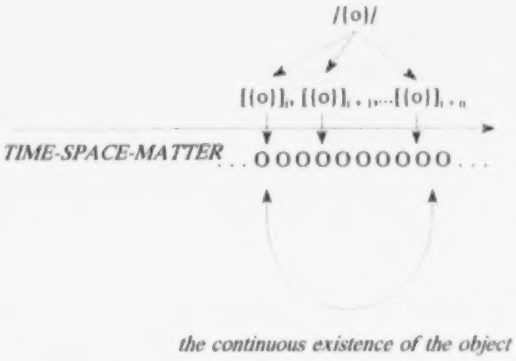
/{o}/
[{o}]i, [{o}]i+1,...[{o}]i+n
TIME-SPACE-MATTER
...OOOOOOOOOO...
the continuous existence of the object

Figure 14. A schematic view of the **prescinded index** as applied to an individual object extended materially over space and time.

The resulting structure is grammatically a dyadic polyad. It has a triadic hypostatic icon at its distal end and on its proximal end we find a polyadic series of elements all connected with and identified with that same hypostatic icon in a linear temporal arrangement. Thus, by inference, the concept of a distinct object distributed over time in a multitude of percepts becomes available. However, owing to the essential dyadic character of the index, it is impossible for the developing sign-user to know the difference between percepts associated with a single object and percepts associated with other objects that merely look like that first one. That is, a temporally continuous series of percepts associated with a single object may occasionally, perhaps even frequently, be contaminated by percepts mingled with that temporal series, but associated in actuality with one or more distinct objects that merely resemble the first object. Thus, we may predict that at this phase the child has no adequate means of inferring that an individual object can appear in only one place at any one time.[21] In fact, the data of the signs at the 5th phase of abstraction will contradict any such possibility.

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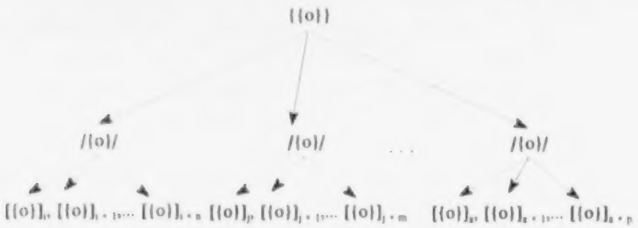
[20] According to my reading of Bower (1971) this result occurs at about 16 weeks in the infants he studied.

At the 6th phase of abstraction (the third phase of the indexical cycle of L-theory; see Figure 13 above), the infant will hypostatize the prescinded index. This hypostatic operation is shown in Figure 15. It makes possible the construction of open-ended, but finite, classes of objects by cycling between the discriminative deployment of these enriched indices and the respective series of noted percepts in which each appears. The final result of this phase will be a fully **hypostatic index** (thus introducing the **6th system of signs**). This system and recyclings of it within the indexical cycle of abstractions will generate systems of classes and hierarchies of them.


[{o}]
/{o}/
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. . .
/{o}/
[{o}]_i, [{o}]_i+1,... [{o}]_i+n
[{o}]_j, [{o}]_j+1,... [{o}]_j+m
[{o}]_z, [{o}]_z+1,... [{o}]_z+p

Figure 15. A schematic view of the **hypostatic index** as applied to any plurality (though only finite ones) of prescissive indices each linked with some series of noted percepts.

The grammatical analysis of these hierarchies will reveal branching indexical tree-structures (as shown in Figure 15) with a dynamic hypostatic index at the distal end and a finite but potentially large number of experienced percepts arranged in a temporal series at the end of each proximal prescissive index. The perceptual series associated within each such structure, however, will occasionally be contaminated by the mixing of percepts from different objects on account of the inevitable and, at this stage irremediable, imperfection of the index.[22] On this basis a whole new range of inferential possibilities arise. The logical objects construed by the hypostatic index are arranged in dynamic indexical sign systems that enable knowledge of one element of the system to be generalized to other members at every lower level of the hierarchy. That is, by virtue of the indexical relations, what is known of a higher element of the system applies to lower cases on account of the fact that the higher element must either have been abstracted from them or from their similars.

At this stage, the hypostatic index leads to conceptions of two markedly different kinds of linked series, as shown in Figure 16, but which are not yet known to be distinct by the infant. The two kinds of series cannot be fully distinguished owing to

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[21] Bower (1971) confirms this prediction.

[22] This degeneracy is summed up by noticing that every index seems to indicate anything in the general direction in which it points. The difficulty for any potential interpreter in construing the index is to find just which object along the line is the one intended. Or, for the sign-user who is deploying the index, the difficulty is to point unambiguously just to the object intended and no other. This last feat, owing to the logical properties of the index as a sign, is not quite achievable.

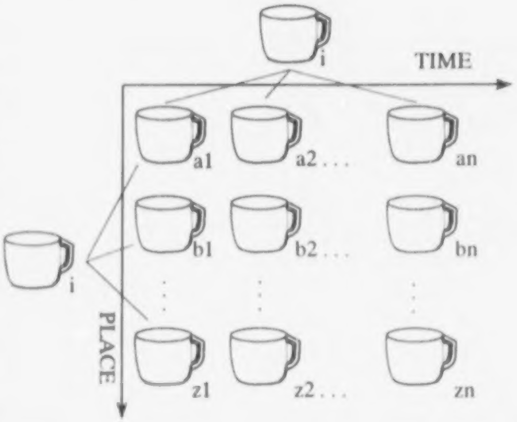

Figure 16. The peculiar ambiguity of the hypostatic index.

the logical limitations of the indexical sign systems developed and deployed thus far. The two distinct kinds of series signalized by the system of hypostatic indices will include temporal sequences of percepts of one and the same object mingled with temporally distinguished percepts of spatially distributed pluralities of similar objects that are regarded as the same by the infant. These distinct arrangements are necessarily confused at this stage owing to the fact that any index whatever always points ambiguously both to a place and to a time. Thus, it is impossible for the infant at this stage of development to distinguish a temporal series of percepts of the same object from a spatial arrangement of percepts of distinct objects that seem to be identical. The spatial arrangement, it is true, can sometimes be partially distinguished from a temporal distribution owing to the simultaneous appearance of a plurality of objects in the perceptual field. However, if the objects are, say, animate things that resemble each other, or if they are moved around while the infant is not actively tracking them, the temporally distinct percepts of any given object are certain to be mingled with the spatially distinct percepts of the plurality (like cattle milling in a corral) so that the two distinct kinds of pluralities end up being pretty thoroughly mixed.

This outcome is a strict logical consequence of the nature of indices in general. Nevertheless, the hypostatic index is the sort of sign that is well-suited to defining classes or series of objects. Furthermore, since the only other limitation on the classes generated (besides the special degeneracy of the index) is whatever limits there may be on the icons that are involved in the discriminative phase of the indexical cycle, the classes generated may be very narrow, e.g., pertaining to individual objects or small classes of pluralities, or they may be quite broad, e.g., pertaining to relatively larger classes of more widely extended pluralities. The hypostatic index, however, cannot generate a class larger than a finite plurality owing to the manner of its application. Being an index, it requires distinct acts of pointing and such acts can never lead to more than classes containing some finite number of members.

By the 6th phase of abstraction, for many species and most mammals, the abstractive process will have reached and perhaps surpassed an upper bound, but for normal human beings, the 7th phase of abstraction (the first phase of the symbolic cycle) will be precipitated soon after the hypostatic indexical phase. This 7th phase of L-theory is precipitated in part by exposure of the infant to symbolic representations manifested in linguistic signs (and/or symbolic gestures) by other sign-users. These will guide the infant through the entire symbolic cycle of abstraction and on to the 10 phases of abstraction in G-theory. At the first phase of the symbolic cycle, two distinct kinds of hypostatic indices are already deployed and then are linked by a pairing of their members as shown in Figure 16 all inside circle 2. Throughout the symbolic cycle, the abstractive processes are precipitated in part by the language community into which the child is being assimilated.

The **discriminated symbol** (or **7th sign system**) will involve at first the surface-forms, shown by [s] with subscripts in Figure 17, of one (or perhaps a very few) linguistic signs (or gestures) that have already been perceptually distinguished through the phases of the indexical cycle (4, 5, 6). The outcome of these abstractions leading up to the discriminated symbol, [s], are necessary preliminaries to its development at phase 7. Soon after, at the second phase of the symbolic cycle, a **prescinded symbol** (the structure numbered 2 in Figure 17—corresponding to **sign system 8**) will appear. This sign is the phonological (or gestural) form, designated /s/, of the already discriminated **linguistic *signs*** $[s]_j$, $[s]_{j+1}$,..., $[s]_{j+m}$ (as shown in Figure 17). Before all of this linguistic development occurs, the structure numbered 1 in Figure 17, corresponding to the manifest forms of the **logical *object* of that linguistic *sign*** will have already been developed through phases 1-6, but will not be linked with the linguistic sign at all until 7 where the link is made in a discriminative or interpretive way and 8 where it is extended to the production of the surface form. The perfected correspondence between the indexical sign for the object and the indexical sign for the symbol itself will also be hypostatized. The **hypostatic symbol** at phase 9 (**sign system 9**) constitutes the

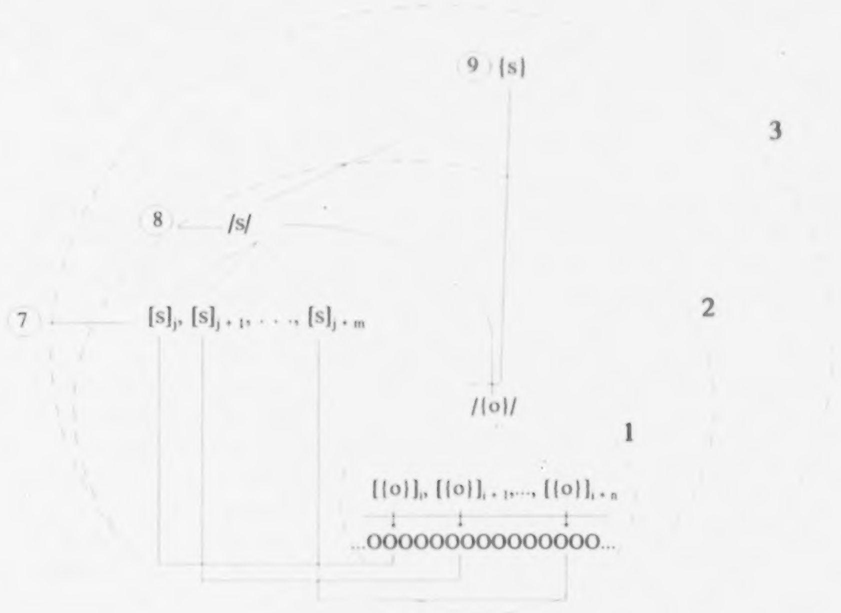

Figure 17. A schematic view of the **discriminated symbol**, each [s], the **prescinded symbol**, /s/, and the **hypostatic symbol**, {s}, as applied by convention to any individual logical object.

syntactic and semantic relation between the sign and its object. It is, then, the first meaningful linguistic sign (the element numbered 3 in Figure 17), {s}.[23]

The hypostatic symbol, abbreviated as {s}, thus consists of one fully hypostatic index (the entire structure subsumed in 3 under {s} in Figure 17) which includes a prescissive index (structure 2 in Figure 17) of the sign itself, /s/, which is attached through the conventional medium of the symbol to the whole complex, and which also includes the hypostatic index of the object of the sign designated by the structure under /{o}/ (in circle 1 of Figure 17). The whole complex which becomes available at phase 9 may conveniently be designated as $[\{o\}]_i \leftarrow [s]_i \leftarrow /s/ \leftarrow \{s\}$. What makes this formal structure utterly distinct from any other sign system yet developed is that *this* sign acquires its significance purely by being conventionally associated with its object. Also, unlike the rest, the deployment at phase 10 of this sign system comes nearly completely under the volitional control of the sign-user. Further, except for its history of deployments, the symbol is an almost timeless unity. As a result, it is very unlike the icons and indices of prior phases of abstractive development.

Owing mainly to its conventionality, the hypostatic symbol system provides a solution to the confusion owed to the degeneracy of the index that appeared on the indexical cycle of abstraction (phases 4, 5, and 6)—see Figure 16 and discussion there. Through the language community and its system of linguistic signs, the confusion owed to the imperfection of the index can be removed. By appeal to a purely conventional linguistic sign, a hypostatic symbol, the child is now provided with a new basis for discriminating a series of percepts of one and the same object from a series of similar percepts contaminated occasionally by percepts from some other similar object(s). The arbitrarily introduced discriminated symbol enables the solution of this problem by providing a perfectly independent way of marking the particular object of interest—as is accomplished through a name, for instance.

For example, the child's first deployed symbol might be something like 'momma', 'baba' (for bottle), 'Chester' (the name of the dog), 'bye-bye' (referring to leave-takings), 'hot' (for painful and dangerous things), or 'no' (for forbidden acts), or some such word or utterance like one of these. Suppose the word, in fact, is 'momma'. The discrimination of this symbol, {momma}, will proceed through the indexical cycle where distinct occurrences of [mamʌ]$_1$, [mamʌ]$_2$, . . . [mamʌ]$_m$, will come to be recognized as instances of the hypostatic index /mamʌ/. Babbling will no doubt play a role and eventually the child will be able to produce the form at will. Similarly, another plurality of percepts of the person,[24] which may be designated [{MOMMA}]$_i$, [{MOMMA}]$_{i+1}$,..., [{MOMMA}]$_{i+n}$, will be integrated under a distinct prescinded and then hypostatic index which may be abbreviated, {/{MOMMA}/}. This sign will subsume the various perceptual forms the person may take on various occasions and in various contexts. Next, in order for the symbol to be discriminated, it is necessary for the two distinct series of objects as designated by their separate and distinct indices to come into a symbolic association. That is, the child must come to notice the fact that when {{MOMMA}} the person is present as a distinct bodily object manifested in a series of percepts, from [{MOMMA}]$_i$ through [{MOMMA}]$_{i+n}$, a unique phonological event [mamʌ]$_i$ (instantiating another hypostatic index {/mamʌ/}) will often be linked to a percept, [{MOMMA}]. When the significance of this linking is noticed, the symbol is discriminated for the first time. The child, thus, becomes a receptive participant able to construe the indexical meaning of at least one linguistic sign. The acquisition of additional symbols will progress more rapidly thereafter.

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[23] Here, following the common convention of morphological analyses dating back at least to Nida (1949), curly brackets or braces are used to enclose the meaningful linguistic sign, {s}.

[24] Here the CAPITAL letters are used to designate the manifest appearance of the logical object designated by the symbol in question.

As soon as the discriminated symbol is understood with respect to its meaning, owing to the fact that the phonological form is likely already to have come under the hypostatic indexical control of the child (through babbling and verbal play), that phonological form can almost immediately be deployed as a prescinded symbol. This momentous event, which usually occurs somewhere between the 9th and 15th month of the normal child's life, enables the child to join a linguistic community as an active participant. Upon this prescissive phase of the symbol, the concept of distinct individual objects which endure over time (even when the child is not perceiving them) but which can appear only in one place at any given time begins to be worked out. Now, for the first time, the child has an independent means of both marking an object with a conventional sign and seeking confirmation of that marking through the linguistic community. Also, the symbol becomes a shorthand for the growing history of experiences with the marked object. It provides the possibility of the first *semantic* (fully abstract) hypostasis of a relatively pure meaning that is drawn out from the *syntactic* (spatio-temporal) history of conjugal relations between that meaning and its particular objective *pragmatic* instantiations.

Fully generalized classes (and systems) of similars are now also achievable owing to the special grammatical properties of the hypostatic symbol. Since such a symbol is not limited to pointing (though it may be used in that way, i.e., in the manner of an index), it logically comprehends all *possible* cases (whether existent or not in the material world of space-time) through its power as a fully abstract symbol. Thus, upon the hypostatic phase of the symbol, a more perfect idea of generality and continuity is achieved. That idea could only just barely be glimpsed in any hypostatic icon by means of which an object could be expected to be found where it was noted previously. The notion of continuity was expanded through the hypostatic index to a noted series of linked percepts, each with some temporal extension. But, now, at the hypostatic phase of the symbol, a more complete continuity comes into view where the particulars become so connected that they melt together into a genuinely continuous stream (see endnote 1), just as Peirce described the case in elegant mathematical terms (cf. Ketner & Putnam 1992). Also, Peirce showed that the idea of mathematical generality was the same concept as this perfected sense of continuity. The connectedness of the space-time continuum thus becomes available to the child along with the richness of inferential connections that it affords through symbols per TNR-theory. It is true that the continuum has been presupposed all along by the child, but only at the completion of the first symbolic cycle of abstraction is that idea really made accessible through signs. That is, elements of the material continuum that are not directly perceived may still come fully under the scope of the abstract symbol.

As a result of all the foregoing, on the first phase of the 4th cycle of abstraction, a perfected hypostatic symbol is deployed in relation to the stream of experience through a hypostatic index, and the stage is set for the growth of grammar (as defined from a modern linguistic point of view). The first phase of the 4th abstractive cycle concludes L-theory, but provides the zero starting point for G-theory (see Figure 13 above). We also find by the first phase of G, a great advance in abstract reasoning through the power of the hypostatic symbol. But the latter development will not be judged to be very impressive as inference *per se* (at least not as it is commonly judged by psychologists, intelligence testers, and logicians), until the 10 additional phases of G-theory (11-20) are completed. However, it is important to remember throughout the development and unfolding of A-theory that both grammatical relations and inferential processes are involved from the start to the finish—as are semantics, syntax, and pragmatics. Still, it is evidently the case that complex grammar of a linguistic kind, at least as it is usually conceived, cannot even begin to emerge until after the 10th phase of L-theory is completed.

There a semantic limit of abstraction is reached. Purely abstract and fully general concepts appear there once for all. As Peirce put it, 'A thought of a thought may differ from the thought itself; but they must both belong to the same abstraction' (1861, in Fisch et al. 1982:84). That is, any abstraction that has a fully abstract idea as its semantic value is already a fully hypostatic symbolic predication. It cannot get more abstract semantically than it already is. Actually, the semantic concept becomes available as a hypostatic symbol at the 9th phase of L-theory, but it is not indexically deployed in discourse until the 10th and final phase of that abstractive system. Hence, the **10th sign system** cannot involve any signs more semantically abstract than the perfectly abstract signs already found within it. Therefore, a kind of semantic reflection of the abstractive process must occur at the 10th phase bringing L-theory to a close. The semantic ceiling reflects the abstractive process onto syntax.

In the same way, the child's grammar will grow mainly in its syntactic complexity until G also reaches a kind of limit upon the 20th phase. That is, even though the semantic aspect of the symbol is fully abstract upon the 9th phase, and is fully deployed on the 10th, the syntactic deployment of symbols and the differentiation of syntactic structures still has a long way to go. The problem addressed by G-theory is how the abstract symbols which are conventionally associated with objects in relatively arbitrary ways come to be arranged in complex sequences construed with special schematic values of a syntactic and semantic kind. The main purpose, therefore, of the growth throughout G is to develop the needed structures to differentiate the vast range of particulars encountered in experience.

Following the principle of repeated cycles, on the initiation of G-theory the sign-user can only proceed from signs already developed in the 10 phases of L-theory. Figure 18 sums up the formal structures of those first 10 sign systems. From these, by applying the same generative logic used up to now, it is assumed that the analyst will be able to read off the diagrams, the next series of sign systems one-by-one, just about as they will be invented by the burgeoning language user. The first deployed hypostatic symbol at phase 11 resembles the formal structure shown in sign system 1 of Figure 18. It is syntactically a monadic predicate of its logical object. Of course, it is true that the logical object, O, is the subject (a particular kind of logical object or argument) of the predicate, {s}, and that these are syntactically joined by an index thus, $O \leftarrow [\{s\}]_i$. So, the 11th phase of abstraction gives an essentially monadic rendering of the argument (Arg) ← predicate (P) relation (equivalently, P → Arg). Given the results of phase 10, this is all that can be discriminated upon the 11th phase of abstraction. As was found on phase 1 of L-theory, where the percept and its object ('O' in item 1 of Figure 18) were seen as one logical object, here too, on the 11th phase of A-theory (the first phase of G), the predicate is merely an extension of its argument. Let this sign system be designated as a **discriminated predicate (sign system 11)**.

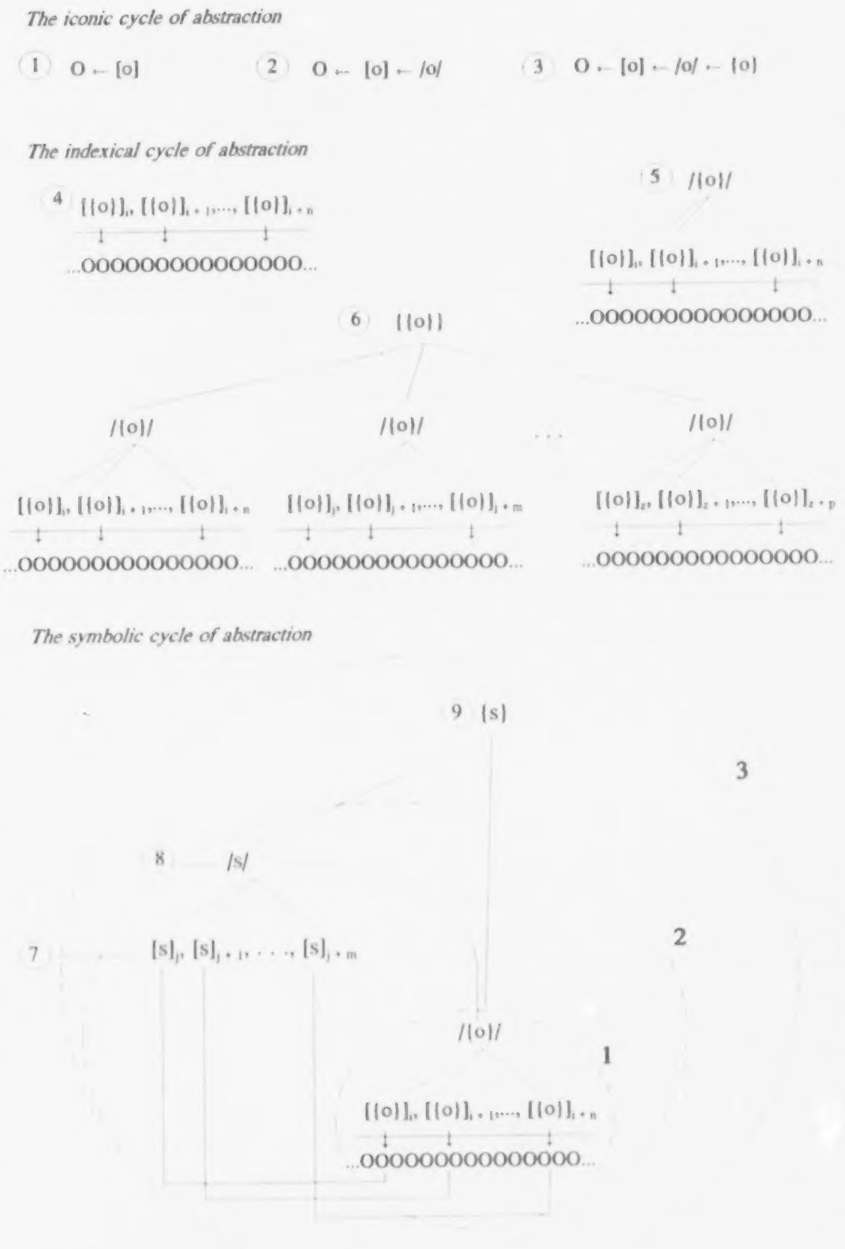
The iconic cycle of abstraction
1 O ← [o]
2 O ← [o] ← /o/
3 O ← [o] ← /o/ ← {o}
The indexical cycle of abstraction
4 [{o}]ᵢ, [{o}]ᵢ₊₁,..., [{o}]ᵢ₊ₙ
...OOOOOOOOOOOOOOO...
5 /{o}/
[{o}]ᵢ, [{o}]ᵢ₊₁,..., [{o}]ᵢ₊ₙ
...OOOOOOOOOOOOOOO...
6 {{o}}
/{o}/
/{o}/
. . .
/{o}/
[{o}]ᵢ, [{o}]ᵢ₊₁,..., [{o}]ᵢ₊ₙ
...OOOOOOOOOOOOOOO...
[{o}]ⱼ, [{o}]ⱼ₊₁,..., [{o}]ⱼ₊ₘ
...OOOOOOOOOOOOOOO...
[{o}]ₖ, [{o}]ₖ₊₁,..., [{o}]ₖ₊ₚ
...OOOOOOOOOOOOOOO...
The symbolic cycle of abstraction
9 {s}
3
8 /s/
7 [s]ⱼ, [s]ⱼ₊₁, . . ., [s]ⱼ₊ₘ
2
/{o}/
1
[{o}]ᵢ, [{o}]ᵢ₊₁,..., [{o}]ᵢ₊ₙ
...OOOOOOOOOOOOOOO...

Figure 18. A schematic view of the sign systems of L-theory (the basis for G-theory and D-theory).

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At this phase each sign produced must function at a minimum as a demonstrative or vocative act pointing to some fact or factual state of affairs. It may include both nominal elements as in {momma}, {baba}, {dada}, etc., and verbal descriptors of an action, effect or result of action as in {bye-bye}, {hot}, {no}, etc. These are all monadic predicates nevertheless at phase 11 where the predication is about a present state of affairs regarded as a whole (a monad). These signs are at a limit of particularity (though certainly not of determinacy or specificity as yet), referring to particular logical objects. Nominals are not differentiated with respect to mass/count arguments, nor number, etc., and the more verb-like elements are not differentiated with respect to tense, aspect, or mood.

Upon the 12th phase, assisted by the essential guidance of the sign community, the sign-user has already marked certain arguments involved in factual states of affairs with symbols. From any one of these, or, from any complex of them, relational predicates may be prescinded. For instance, suppose it is observed that things dropped fall to the ground. The word 'fall' is commonly presented to the child in such contexts. Or equivalently, the child or someone else waves a hand and the word 'bye-bye' is uttered by sign-users who are present. By observing the action as distinct from whatever object may produce it, and by linking the conventional sign with it, a **prescinded predicate (sign system 12)** appears. This operation sharply separates the P from its Arg(s). Note that one or two or more cars crashing together is still a crash, so, the adinity of the P in question is of no great moment. The prescinded P will lead both to the primitive notion of *transitivity* in relation to the movements performed by or occurring to objects, and to stative predications (adjectives or verbs of attribution).

At the 13th phase, the prescinded P (at first a transitive verb involving movement) leads to a **hypostatic predicate** or **P (sign system 13)** resulting in the first transitive verb. The same process will eventually lead to common nouns and stative predicates (e.g., adjectives). The earliest hypostatic Ps to appear, however, will be transitive verbs of action. The transitive motion of an object prescinds itself from its spatio-temporal context relative to the child's viewpoint, but a stative attribution (e.g., the color of an object) requires the child to look around to find other instantiations of the stative P. However, both kinds of P can be prescinded on phase 12 and hypostatized on 13. Here, therefore, both adjectival predications associated with nominals (e.g., adjectives as in 'green BLOCK', 'red BALL', 'hot STOVE', etc.) and verbal elements (e.g., 'BLOCK fall', 'STOVE hot', 'BABY cry', etc.) will be commingled in a natural way into a general class of Arg(s) ← P relations.

Deploy the hypostatic P at phase 14 and the result will be the first genuine two-phrase **sentence** or **finite clause** involving both a marked Arg and a P (e.g., 'momma bye-bye' meaning that momma is waving bye-bye, or something similar). Now, the distinction between noun and verb begins to be apparent (in whatever way it is conventionalized in the language at hand). On the 14th phase, what is discriminated is the relation of a particular finite clause with a particular fact. This operation by repetition will produce relations with various facts, one-by-one. Then, at phase 15, the finite clause will be prescinded from the various separate facts so as to produce a **prescinded clause (sign system 15)**. Next, the prescinded clause may be hypostatized on phase 16 to apply to all facts like the ones that were in view on phase 15. The **hypostatic finite clause (sign system 16)** may then be deployed on phase 17.

With the help of the community new **nonfinite predicates** (of various sorts) will continue to be provided by the progressive association of new predicates (nonfinite ones) with the hypostatic finite clauses that are deployed on phase 17. These will include markers of number, gender and case, determiners, quantifiers, numerals, modifiers, intensifiers, comparatives, prepositions, etc. as associated with nominal argument structures as well as markers of person, number, tense, aspect, modality, adverbials, locatives, etc., as associated with finite clausal structures. Each nonfinite predicate added to the growing grammar of the child (with the help of the community) may be designated as a $[P]_i$ on phase 17 (the discriminative phase of this cycle). For this new predicate to be discriminated and eventually added to the child's developing grammar, it is necessary that it come to be associated with one or many factual states of affairs from which that $[P]_i$ can be prescinded. At a minimum every factual state of affairs involves one or more objects in some state of being or in some action mutually involving the one or more objects in question. Such a factual arrangement of things can be designated as,

((((O) ← FINITE ACTION or PRESENT STATE) ← Nonfinite STATE or PROCESS) ...),

where 'O' represents the one or more logical objects involved in the finite action or present state, all of which is involved in the nonfinite action or state, all of which is involved in the next nonfinite-action or state, and so forth. Now, suppose that O is represented by a known predication which is the designated {Arg} on phase 17. Suppose that the finite action or present state is designated by a known predicate associated with that {Arg}, thus, {{Arg} ← {P}}. But, suppose further that the nonfinite state or process is designated by a predicate unknown to the developing sign-user, thus, $[P]_i$. Yet, because this discriminated nonfinite predicate is associated with a particular state or process, on phase 18 it can become a **prescinded nonfinite predicate**, which on phase 19 can become a **hypostatic nonfinite predicate**. But since all possible predicates (per TNR-theory) must be associated with actual states of affairs in the manner just described, all of them are solvable, without exception between phases 17 and 19.[25] So, at phase 20, G-theory is concluded (see Figure 19).

Just as a deflection of a semantic kind occurred on the 10th phase of L-theory, now a deflection of a syntactic kind occurs on the final phase of G-theory and the sign-user shifts into the pragmatic realm of discriminative, prescissive, and hypostatic possibilities. Thus, on phase 21 the 10 phase sequence of D-theory is inaugurated. As in every phase of L and G, the sign-user can only appeal in D-theory to signs of things and states of affairs already in place. As has been true throughout, signs remain subordinate to their logical objects. In L-theory the focus was on the nature of material objects and their relations in space-time. In G the focus shifted to signs and sign-relations as linked to objects and object relations. In D it shifts again to the entire complex of signs as expressed in polyadic systems relative to material objects

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[25] The sort of solutions required for various inflections on demonstratives, determiners, quantifiers, numerals, adjectives, intensifiers, etc., are worked out in Oller and Damico (in press). Similarly, the kinds of argument structures involved in the expression of tense, aspect, and mood, or in the differentiation of count/mass nouns, relative to their determiners, quantifiers, numerals, etc. are equally assured of solution. If the system of cognitive grammar of Langacker (1987, 1991, 1995) is extended in the manner required by TNR-theory, and the same holds for Givón (1983, 1990, 1993), and Chomsky (1982, 1992), much of the apparatus for fleshing out G-theory in all of its details has already been well-developed. In fact, as long ago as 1865, C. S. Peirce had developed the necessary apparatus in his logic of relatives (cf. Peirce 1897 and references given there in Hartshorne & Weiss 1933). However, in order for any grammatical theory to prosper, it is essential, as proved in the first part of this paper, to refer to arguments as instantiated in the material space-time relations of the ordinary common world of experience per the requirements of TNR-theory.

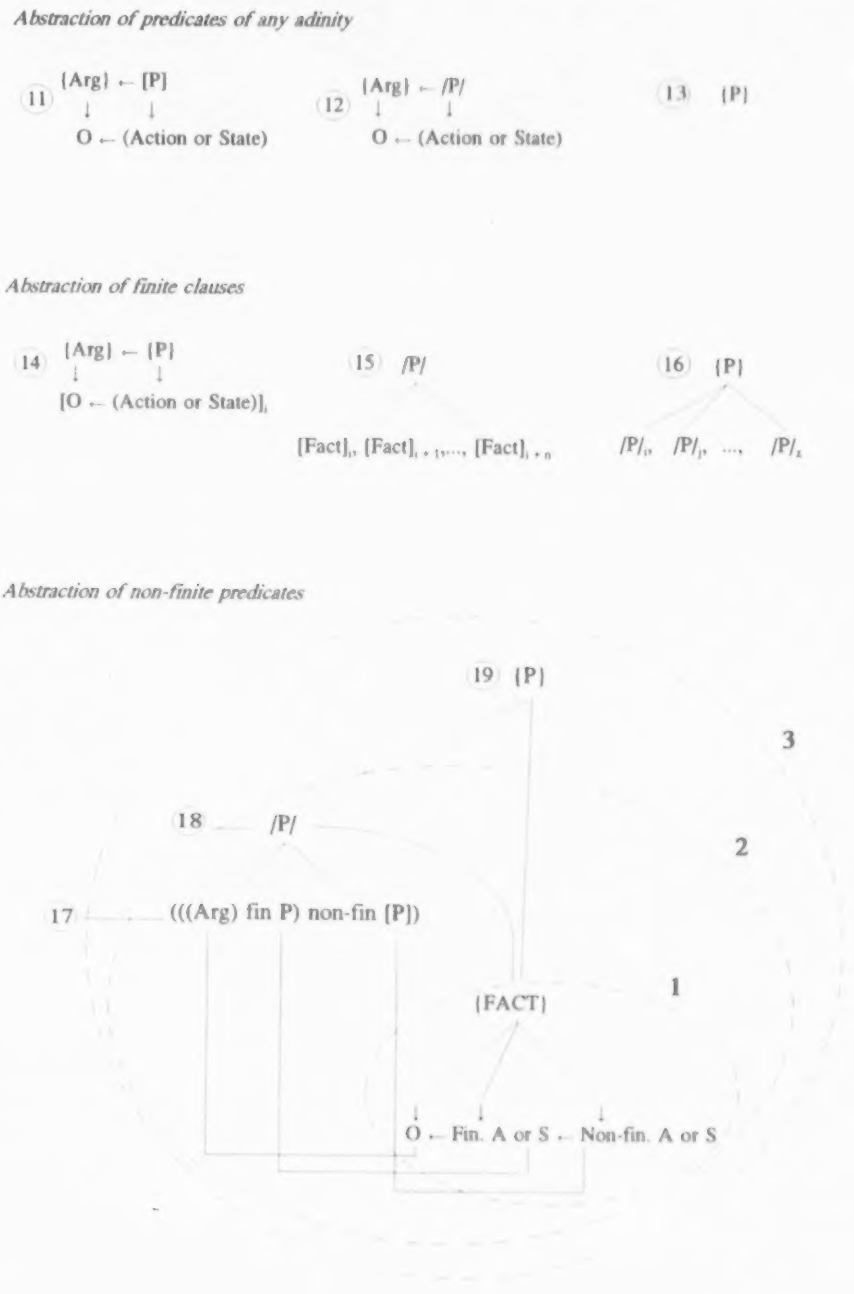
Abstraction of predicates of any adinity
11 {Arg} ← [P] ↓ ↓ O ← (Action or State)
12 {Arg} ← /P/ ↓ ↓ O ← (Action or State)
13 {P}
Abstraction of finite clauses
14 {Arg} ← {P} ↓ ↓ [O ← (Action or State)]ᵢ
15 /P/
[Fact]ᵢ, [Fact]ᵢ₊₁,..., [Fact]ᵢ₊ₙ
16 {P}
/P/ᵢ, /P/ⱼ, ..., /P/ₓ
Abstraction of non-finite predicates
19 {P}
3
18 /P/
2
17 (((Arg) fin P) non-fin [P])
1
{FACT}
O ← Fin. A or S ← Non-fin. A or S

Figure 19. A schematic view of the sign systems of G-theory.

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manifested in space-time relations. At L the question was: (1) What sorts of objects and object relations are there? At G it became: (2) What sorts of signs and sign relations are there? At D it becomes: (3) What sorts of sign and sign relations together with object and object relations are there? Thus question (2) includes (1), and (3) includes both (1) and (2). Or putting these same questions in slightly more compact forms, the burgeoning sign-user throughout L has asked about matters of fact, throughout G about matters of language, and at D comes to ask about matters of knowledge. At D the focus shifts to what can be known. Just as G involved a higher-level examination of the essential structures attained step-by-step in the various phases of L, D also looks back to those humbler beginnings in L, but as augmented and developed with the aid of results achieved by G.

At phase 21 the inference suggested is from the argument of the predication, i.e., from the very object of the sign, to the symbolic conception of that argument. The discursive inference, thus, is from the logical argument to a holistic symbolic structure which may constitute the abductive basis for what philosophers and logicians call the **term** of a proposition, or we may call it a **datum (sign system 21)**. This abductive judgment implicitly involves a proposition (as shown in the grammatical sentence, Arg ← P), but it is the term itself regarded as a monad which is brought to focus at phase 21.[26] If its finite acts or temporal states are prescinded at phase 22 the **proposition (sign system 22)** comes into view, and if this system is hypostatized at phase 23 the **abductive inference (sign system 23)** appears and the *iconic or abductive cycle of inference* is completed. Also, the possibility of deliberate inductive reasoning appears.

Upon phase 24, if abductive inferences of the previous phase are deployed discriminatively and indexed against however many arguments may constitute suitable **cases** or **data (sign system 24)**, the material foundation for an inductive judgment is laid. Let that data be examined prescissively on phase 25 and the abductive proposition that formerly applied to the singular term now applies to the whole **data sample** or **sample of cases (sign system 25)**. By the same token, this sample provides the basis for the final phase of the *indexical cycle of inference*. At phase 26 an **inductive inference (sign system 26)** is formed from the sample by hypostasis.

The latter inference—or, in fact, any general symbolic representation—will provide the material basis for the *symbolic cycle of inference*. Even though the symbolic cycle

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[26] Modern grammarians (linguists) have nearly universally settled on calling such entities 'arguments' based on certain logical systems under the general head of 'predicate logic' or 'the predicate calculus'. However, it is worth noting that the term **argument** is apparently recruited by this practice of grammarians to do double duty, first as a sign for an object and then as a sign for a term in an *argument* in the more canonical sense of a syllogism, debate, or instance of discursive reasoning. Now, we have three rather distinct meanings of the one word 'argument'. But, I think no harm is done to use the word in all these senses. When we come upon an argument in the traditional sense (the last one mentioned in the previous sentence), it more or less forces itself upon our attention on account of the energy that the participants inject into it. But this same sense can be found in an object when we stumble upon it in experience. It will resist and come into bodily conflict with us just as vigorously as its material status permits it to (and no more). As for the intermediate sense of the term 'argument' as applied by modern grammarians, that sense too incorporates the first (an object as an argument) if only TNR-theory is brought into the picture. That is, every argument in any grammatical structure that has any determinacy at all must be associated with some logical object that has some material status in space-time. So the three senses of the word, I contend, are all one, and all legitimate uses of the word argument. Further, A-theory shows, conclusively, I think, that the object-sense of the word 'argument' is the proper basis for its two other senses which must come later in a developmental way.

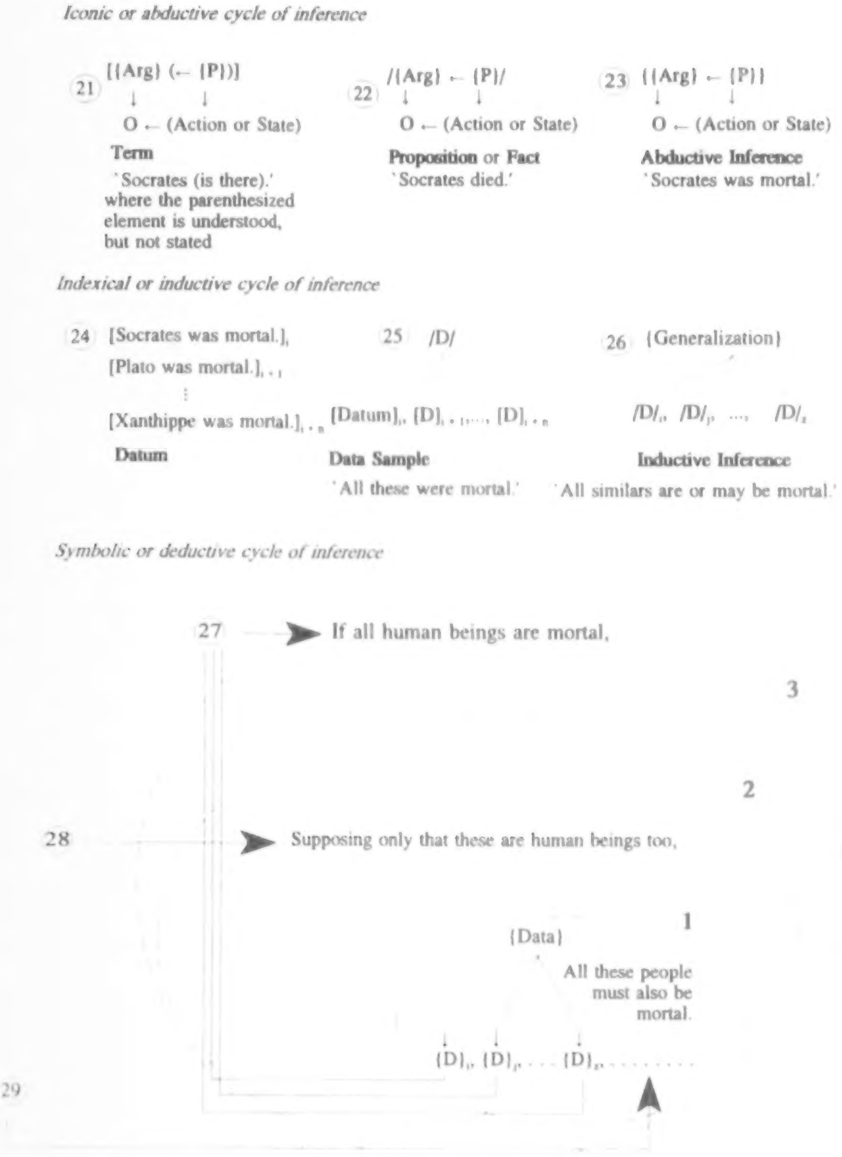
Iconic or abductive cycle of inference
21 [{Arg} (← {P})]
O ← (Action or State)
Term
'Socrates (is there).' where the parenthesized element is understood, but not stated
22 /{Arg} ← {P}/
O ← (Action or State)
Proposition or Fact
'Socrates died.'
23 {{Arg} ← {P}}
O ← (Action or State)
Abductive Inference
'Socrates was mortal.'
Indexical or inductive cycle of inference
24 [Socrates was mortal.]ᵢ
[Plato was mortal.]ᵢ₊₁
[Xanthippe was mortal.]ᵢ₊ₙ
Datum
25 /D/
[Datum]ᵢ, [D]ᵢ₊₁, ..., [D]ᵢ₊ₙ
Data Sample
'All these were mortal.'
26 {Generalization}
/D/ᵢ, /D/ⱼ, ..., /D/ᵤ
Inductive Inference
'All similars are or may be mortal.'
Symbolic or deductive cycle of inference
27
If all human beings are mortal,
3
2
28
Supposing only that these are human beings too,
1
{Data}
All these people must also be mortal.
{D}ᵢ, {D}ⱼ, . . . {D}ᵤ, ...
29

Figure 20. A schematic view of the sign systems of D-theory.

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requires no additional basis other than a definable conventionalized symbol, the result of the indexical cycle of inference at phase 26 serves to provide the developed *material basis* (inadequate though it must be owing to the degeneracy of indices) for the first symbolic inference. The latter proceeds at phase 27 with the discrimination of similar data samples or **analogues (sign system 27)**, comparable to those upon which the prior inductive generalization was based. These are linked by prescission at phase 28 to provide the form of the general **symbolic inference (sign system 28)**, and hypostatized into a fully **general notion** or **axiom (sign system 29)** at phase 29. The material grounding of the entire process of symbolic inference, though inadequate for sustaining fully secure deductive inference,[27] is nevertheless necessary (per TNR-theory), for the determination of the purely abstract semantic values, i.e., the meaning of the general notion or axiom, to be put forward as a suitable basis from which to draw deductive inferences. That definition or interpretation must be grounded in an indexical manner (according to TNR-theory) as laid out in the prior indexical cycle of inference (phases 24-27 of D-theory).

Thus, the material ground for fully symbolic reasoning is attained on phase 29 and when that sign system is deployed on phase 30, both D-theory and A-theory reach a natural limit (see Figure 20). That is to say, in spite of the fact that discursive inferences are bound to occur in nearly infinite profusion after phase 30 is reached, at that point, nevertheless, a limit of a perfectly **general inference (sign system 30)** is reached. Just as L-theory reached a fully abstracted semantic value at phase 10 of A-theory, and G-theory reached reasonably determinate solutions to grounded syntactic relations at phase 20, D-theory reaches a limit of inferential generality as the axioms of phase 29 come to their applications in experience upon phase 30. There, full-fledged logico-mathematical reasoning of the sort that Aristotle captured in his syllogisms, and of the sort that Euclid immortalized in his geometry, and that Riemann, Lobachevsky, and Peirce greatly refined our conception of, comes into being.

Just as abduction is based in discriminative, prescissive, and hypostatic inferences about iconic representations (essentially holistic or monadic relations—mere relations between sign and object), and just as induction is based in prescissive inferences built upon indexical associations of iconic representations (dyadic relations and conjunctions of them—relations between signs with object relations), then, merely following the cycles of abstraction consistently, it comes out that deduction must be grounded in both the former kinds of inference (abductive and inductive) in relation to symbolic representations (triadic and higher polyadic relations—symbolic relations with sign relations and with object relations). So, A-theory in all three of its parts is completed.

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[27] This is owed to the fact that all the possible empirical cases that might be relevant to any given symbolic generalization (definition, or axiom) cannot be examined in the indexical, scientific, or empirical way. Only the deductive or symbolic method of purely abstract mathematical reasoning can examine all possible cases. Mathematical reasoning, thus, transcends all of the empirical methods just as certainly as it embraces and comprehends them.

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DIVERGENCE OR CONVERGENCE: A SYNTACTIC AND PHONOLOGICAL STUDY OF AAVE IN "MIDDLETOWN"

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1. Introduction. Recent debate on African-American Vernacular English (AAVE) focuses on the linguistic divergence and convergence hypotheses. Some linguists (Ash and Myhill 1986; Bailey and Maynor 1987a, 1989; Graff, Labov, and Harris 1986; Labov 1983, 1987; Labov and Harris 1986; Myhill and Harris 1986) claim that over time AAVE has been diverging from White Vernacular English (WVE) on a national level. Labov (1983, 1986) points out that there is evidence that AAVE is increasingly diverging from WVE with respect to grammatical structure, phonological features, tense, aspect, and mood. He observes that the meanings of some grammatical features of AAVE now have become so different from their original meanings that the widening of the gap between AAVE and WVE is very evident! For instance, *be done* in an AAVE sentence, such as (1), originally had the same function of denoting the future perfect as in (2) of WVE. But now, according to Labov (1983:37), *be done* has acquired a meaning other than the future perfect. Thus, (3) is now equivalent to (4) instead of (5) in WVE.

(1) *I'll be done put-stuck so many holes in him he'll wish he wouldn't said it* (Labov et al. 1968:266).
(2) *I'll have put-stuck so many holes in him....*
(3) *I'll be done killed that dude if he lays a hand on my child again* (Baugh 1979:154).
(4) *I'll really and truly have to kill that dude if he lays a hand on my child again* (Labov 1983:37).
(5) *I'll have killed that dude if he lays a hand on my child again.*

Labov's assertion of the linguistic divergence of AAVE from WVE has found support in a number of AAVE studies on both syntactic and phonological features.[2] On the basis of their Philadelphia study, Labov and Harris (1986:5) claim that "We also believe that Philadelphia reflects a national trend in the black community towards continued linguistic divergence."

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[1] I owe my sincere thanks to Professor Lawrence M. Davis for his criticism and valuable comments on this study.

[2] These studies include invariant *be* and postvocalic /r/ (Bailey and Maynor 1987a, 1989), /aw/ and /o/ fronting (Graff, Labov and Harris 1986), /o/ fronting (Luthin 1987; Thomas 1987, 1988, 1989), the absence of the possessive suffix (Labov and Harris 1986), third singular suffix used as historical present in narrative (Labov and Harris 1986; Myhill and Harris 1986), and the sensitivity of linguistic change to ethnicity (Ash and Myhill 1986).

Other linguists, such as Butters (1987, 1988, 1989), Vaughn-Cooke (1986, 1987), and Wolfram (1987, 1991) point out that the data used to support the divergence hypothesis manifests insufficiency, incomparability, and age-grading. They have the following observations. First, only a very small number of linguistic features were examined, which makes the results not to be representative. Second, different elicitation methods were adopted in collecting data, which may account for different results. Third, only children and elderly subjects over 70 were involved in the comparison, so that they would certainly exhibit different linguistic patterns. In addition, some features involved in the divergence discussion are in fact heavily age-graded. For instance, habitual *be*, an extensively discussed feature to support the divergence hypothesis, predominantly occurs in the speech of children at different times and different places. Most importantly, the data supporting the divergence hypothesis were apparent-time data, and thus inappropriate in the investigation of language change. These linguists have also presented evidence to demonstrate the likelihood of AAVE-WVE convergence rather than divergence. The controversy has not been solved satisfactorily, mainly because of the lack of one crucial factor--namely, time-depth data to test the hypotheses.

This paper provides such data. It reports the results from a linguistic study on AAVE, specifically designed to investigate language change and to test the divergence hypothesis. With the time-depth data, this study focused on twenty-three syntactic and five phonological features in the speech of thirty-two AAVE subjects in Muncie, Indiana. A comparison of data between 1980 and 1993 has revealed that Muncie AAVE has not diverged from WVE, if not converged with it, both syntactically and phonologically.

2. Method.

2.1. Location. Muncie, Indiana, known as America's "Middletown," is the famous subject of the pioneering socioeconomic community studies in the United States conducted by Robert and Helen Lynd during the 1920's and 1930's. With a population of some 71,000, it is located in Delaware County, situated in the east-central part of the state. At present, the population of African-Americans in Muncie is around 6,800, about 10 percent of the total population. Their communities are not as segregated as those in large urban cities. Most of the African-Americans in Muncie today are employed in local factories, and associate with whites daily. To investigate Muncie AAVE can be very revealing because most of the AAVE studies completed so far, in both rural and urban areas, have been carried out either in the southern United States (e.g., Anshen 1969; Bailey and Bassett 1986; Bailey and Maynor 1986, 1987a, 1987b, 1988, 1989; Butters 1973, 1981, 1987, 1988; Butters and Nix 1986; Coleman 1975; Davis 1970b; Dayton 1984; Dorrill 1986; Eliason 1956; Feagin 1986a, 1986b; Luthin 1987; Maynor 1982; Myhill 1988a, 1988b; Nichols 1983; Nix 1980; Sommer 1986; Thomas 1987, 1988, 1989; Wolfram 1979, 1980), or in large northern urban areas, such as Chicago (Callary 1975), Detroit (Edwards 1988; Wolfram 1969), Philadelphia (Ash 1982; Poplack and Sankoff 1987), and New York City (Labov 1966, 1972; Labov, Cohen, Robins, and Lewis 1968). If we want to generalize regarding linguistic change in AAVE as a whole, i.e., Labov and Harris's "national trend" (1986:5), how can we ignore the fact that AAVE speakers also dwell in other, smaller cities in the north? In addition, the linguistic features of the speech of residents living in large urban areas may exist differently in terms of stability than those in cities with comparatively small populations (Francis 1983:43).

2.2. Subjects. Thirty-two African-American subjects of blue-collar background were involved in the study, divided into two groups, 1980[3] and 1993, with sixteen subjects in each group. To ensure comparability and avoid age-grading, there were eight young subjects aged 17-19 and eight elderly subjects aged approximately between 50 and 70 in each group. All the young and most of the elderly subjects were native residents. Those who were not born in Muncie had resided there at least 45 years. The elderly subjects of 1980 were equally divided into males and females, and so were the young and elderly subjects of 1993. The young subjects of 1980 were all males.

2.3. Phonological Features. Five phonological features were analyzed in this study: (1) the simplification of consonant clusters, (2) [d] used instead of /ð/ in word-initial position, (3) [f] used instead of /θ/ in word-final position, (4) lack of constriction of postvocalic /r/, and (5) absence of medial and final /l/. Among them, only the simplification of consonant clusters is considered to be unique to AAVE (Fasold 1981). This study looked at consonantal features only, because they are more likely to be classified as binary which are "most easily handled as *percentage*" (Milroy 1987:113). Vowels, on the other hand, are normally analyzed by using an index score which may be more open to subjective judgment. Because of the involvement of these consonantal features in the discussion of AAVE divergence and convergence (Ash and Myhill 1986; Bailey and Maynor 1989; Butters 1987, 1989) as well as in major AAVE studies (e.g. Butters 1987, 1989; Labov 1966, 1972; Labov, Cohen, Robins, and Lewis 1968; Wolfram 1969; Wolfram and Fasold 1974), focus on these features is more likely to shed light on the divergence and convergence controversy.

2.4. Syntactic Features. This study examines twenty-three syntactic features which share the characteristics defined by Fasold (1981:167) as "nonstandard

[3] The elderly subjects of 1980 were selected from the Muncie Black Oral History Project conducted around 1980 by the Center for Middletown Studies at Ball State University. The young subjects of 1980 were selected from two films about a group of high school students and their daily lives both in and out of school in Muncie, *Seventeen* and *The Big Game*. The films were two of the six television documentaries entitled *Middletown* created by Peter Davis between 1979 and 1981.

features shared with other nonstandard varieties" and "unique, also nonstandard, features [to AAVE]": (1) use of invariant *be* not resulting from the absence of *will* or *would*, (2) use of invariant *be* to convey a sense of future time, (3) absence of copula/auxiliary *be*, (4) *be* + *done* + verb to indicate future perfect, (5) *do* + *be* to convey a habitual condition expressed in question form and for emphasis, (6) *been* used to express past action that has recently been completed, (7) *been* + verb to indicate a recently completed or distantly completed action, (8) *been* + verb to suggest emphatic assertion, (9) *done* used alone to indicate past action either recently completed or completed in the distant past, (10) *done* + verb to indicate recently completed action, (11) absence of preterit and past participle suffix, (12) absence of concord of *be*, (13) absence of plural suffix, (14) absence of possessive suffix, (15) absence of third person singular suffix, (16) hypercorrection, (17) subject repetition, (18) personal pronouns used for demonstratives, (19) *it* used to introduce statements, (20) *here/there go* instead of *here/there is/are*, (21) multiple negation, (22) *ain't* used instead of *didn't*, and (23) embedded *yes/no* question formation. Although some of these features are considered unique to AAVE (Fasold 1981:170-2), linguists have observed that most of them can also be found in white nonstandard speech (Bailey and Bassett 1986; Fasold 1981; McDavid and Davis 1972; Wolfram 1971).

The reasons for selecting many features instead of only a few are that linguists have argued that analyzing only a few linguistic features is inadequate to make a valid claim regarding the whole system of a dialect (Davis 1969). Also, these features have been frequently examined in different AAVE studies (Baugh 1980; Dillard 1972; Fasold 1981; Labov 1972; Labov et al. 1968; Rickford and McNair-Knox 1991; Steward 1967; Wolfram 1969), and some of them were involved in the convergence and divergence debate especially (e.g., Ash and Myhill 1986; Bailey and Maynor 1987a; Butters 1987, 1989; Labov and Harris 1986).

All speech samples were collected during natural conversations about the subjects' daily lives. Except for the samples of the young subjects of 1980 in which the topics were initiated by the subjects themselves, the samples for the rest of the subjects were elicited by an acquaintance at locations comfortable to the subjects and with other peers or family members present. The samples were more than 30 minutes long, taped after the first half hour of the conversation.

3. Analysis. In both phonological and syntactic analysis, the potential environments that favor the occurrence of the feature will be, if possible, defined. Then the actual occurrences of the feature will be presented, and the calculation of the use of the feature according to its potential and actual occurrences will be given. In a table, the numerator in a parenthesis stands for the actual occurrences of a feature, and the denominator refers to its potential occurrences. Since use of decimals only to present data of small occurrences could, according to Atwood (1953:4), "lend a false air of exactitude," the fractions of the data will also be presented.

3.1. Phonological Features. In English three types of monomorphemic final consonant clusters have a stop sound at the end: voiced + voiced stop, as in *mind* and *friend*, voiceless + voiceless stop, as in *ask* and *last*, and voiced + voiceless stop, as in *jump* and *sink*. The third type was excluded from the study since speakers of different English dialects usually do not reduce the pronunciation of the final member of the consonant cluster in this environment (Wolfram and Fasold 1974:130; Moulton 1976:157). Although AAVE speakers, like speakers of standard American English[4], reduce the pronunciation of the final member of the consonant cluster when it is followed by a consonant, they may also reduce the pronunciation of the final member of the consonant cluster when it precedes a word beginning with a vowel (Wolfram and Fasold 1974).

Thus, the analysis of final consonant cluster simplification concentrated on three phonological environments: when the final member of the cluster is followed by a consonant in the next word, such as in *last four*; when it is followed by a word beginning with a vowel, such as in *most of*; and when it is in sentence-final position, as in *He is blind*. This study only included monomorphemic consonant clusters and excluded words of high frequency of occurrence, such as *just* and *and*, as well as the occurrences when the final member of a consonant cluster was followed by a homorganic consonant, such as *las' two years*. Table 1 and 2 present the simplifications of final consonant clusters of voiceless + voiceless stop and of voiced + voiced stop in three phonological environments in the speech of Muncie AAVE speakers.

Table 1 Percentages of Final Consonant Cluster Simplifications (Voiceless + Voiceless Stop) in the Speech of Muncie AAVE Subjects

Subjects	Followed by a Vowel in the Next Word		Followed by a Consonant in the Next Word		Sentence Final	
1980 Young	0	(0/3)	0	(0/7)	0	(0/2)
1980 Elderly	7.7	(3/39)	18.5	(17/92)	30.8	(8/26)
1993 Young	3.2	(1/31)	7.9	(5/63)	39.1	(9/23)
1993 Elderly	4.3	(2/47)	1.3	(1/80)	9.1	(3/33)

From both Table 1 and 2 we can see that the elderly subjects of 1980 had a higher percentage of simplification than that of the elderly subjects of 1993 in all environments. No claim can be made regarding the young subjects of 1980, because of the small number of potential occurrence. The percentage for the young subjects of 1993 was higher than that for the elderly subjects of 1993 in two environments: when the final consonant cluster is followed by a consonant in the next word and when it is in sentence final position. Since AAVE speakers may also characteristically reduce the pronunciation of the final member of the consonant cluster when it precedes a word beginning with a vowel, the data in this environment should be more significant. Table 1 and 2 both show that the number of actual occurrences in this environment in all four groups was very small.

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[4] SAE is used only as a working term for the formal American English that is prescribed in grammar books, used in the news media and education, and spoken by well-educated native English speakers in the United States.

Table 2 Percentages of Final Consonant Cluster Simplification (Voiced + Voiced Stop) in the Speech of Muncie AAVE Subjects

Subjects	Followed by a Vowel in the Next Word	Followed by a Consonant in the Next Word	Sentence Final
1980 Young	0 (0/7)	0 (0/5)	37.5 (3/8)
1980 Elderly	5.4 (3/56)	2.5 (2/81)	12.1 (4/33)
1993 Young	0 (0/46)	1.6 (1/61)	3.0 (1/33)
1993 Elderly	0 (0/51)	0 (0/71)	2.0 (1/50)

If such data indicate anything, it would be that AAVE speakers in Muncie did not usually reduce the pronunciation of the final member of a consonant cluster in this environment. Considering the small number of actual occurrences in all three environments in Table 1 and especially in Table 2, we may say that in the last thirteen years Muncie AAVE speakers generally had not simplified final consonant clusters (voiceless + voiceless stop and voiced + voiced stop) very often in their speech.

Table 3 Percentages of Use of [d] for /ð/ and [f] for /θ/ in the Speech of Muncie AAVE Subjects

Subjects	Use of [d] for /ð/	Use of [f] for /θ/
1980 Young	1.7 (1/59)	0 (0/5)
1980 Elderly	< 0.001 (9/1378)	2.7 (1/37)
1993 Young	1.6 (15/936)	0 (0/64)
1993 Elderly	< 0.001 (1/1033)	1.8 (1/56)

The analysis of the use of the voiced alveolar stop [d] instead of the voiced interdental fricative /ð/ included all words with this feature in word-initial position, except *the*. The environment for the use of the voiceless labio-dental fricative allophone [f] for the voiceless interdental fricative /θ/ concentrated on its occurrences in the word-final position. Table 3 displays the percentages of the use of these two features.

It is obvious that these two features are rarely used by Muncie AAVE speakers, especially the use of [f] for /*θ*/ since there was only one occurrence in the speech of the elderly subjects of 1980 and 1993 respectively. The information in Table 3 suggests that Muncie AAVE speakers basically used standard features in their speech.

Three phonological environments were defined for the lack of constriction for the postvocalic /r/: when it is in word-final position followed by a consonant at the beginning of the next word, as in *car shop*; when it is followed by a consonant in the same word, as in *park*; and when it is followed by a vowel at the beginning of the next word, as in *far away*. Only occurrences of stressed syllables containing a potential postvocalic /r/ were included in the study, since postvocalic /r/ in unstressed syllables could be less discernible in casual speech recorded on audio tapes. Table 4 presents the percentages of the lack of constriction of postvocalic /r/ that occurred in these three environments.

Table 4 Percentages of Lack of Constriction of Postvocalic /r/ in the Speech of Muncie AAVE Subjects

Subjects	/r/ Preceding a Consonant in the Same Word	/r/ Preceding a Vowel in the Next Word	/r/ Preceding a Consonant in the Next Word
1980 Young	6.3 (5/80)	41.7 (5/12)	38.5 (5/13)
1980 Elderly	18.1 (201/1112)	25.6 (46/180)	25.5 (47/184)
1993 Young	2.7 (19/704)	2.5 (3/118)	3.3 (7/214)
1993 Elderly	6.7 (62/926)	14.3 (23/161)	14.3 (23/161)

We can see from Table 4 that both the young and elderly subjects of 1993 had lower percentage of the lack of constriction of postvocalic /r/ than did their counterparts of 1980 respectively in all three phonological environments. This finding suggests that this phonological variable has been moving toward WVE in the speech of Muncie AAVE speakers.

Two phonological environments were defined for the potential occurrence of absence of medial and final /l/. First, an occurrence was counted when a medial and final /l/ was in a stressed syllable and the preceding vowels were non-high vowels. Second, an occurrence was also counted when a medial and final /l/, regardless of the first environment, was followed by [w], [r], and [y], either in the same word or at the beginning of the next word. The percentages of use of this feature is displayed in Table 5.

It can be seen from Table 5 that both the young and elderly subjects of 1993 did not have /l/ absences in these environments. Although the elderly subjects of 1980 had 5.1% /l/ absence followed by [w] in their speech, there were only two actual occurrences. The information of Table 5 may suggest that Muncie AAVE speakers of both 1980 and 1993 generally did not have /l/ absence when it occurred in the medial and final position of a word.

Table 5 Percentages of Medial and Final /l/ Absence in the Speech of Muncie AAVE Subjects

	1980 Young	1980 Elderly	1993 Young	1993 Elderly
_w	0 (0/1)	5.1 (2/39)	0 (0/20)	0 (0/22)
_r	0 (0/10)	0 (0/7)	0 (0/9)	0 (0/10)
_y	N/A	N/A	0 (0/5)	0 (0/1)
ou_	N/A	0 (0/19)	0 (0/14)	0 (0/18)
o_	0 (0/20)	< 0.01 (1/133)	0 (0/177)	0 (0/165)

Obviously, the analysis of the five phonological features in the speech of Muncie AAVE subjects based on the time-depth data does not support the divergence hypothesis. It is evident that most of the features have not diverged from WVE in the thirteen year span, since the rates of the occurrences of these features in the speech of 1993 young and elderly subjects are consistently lower than that of their 1980 counterparts respectively. Additionally, there is indication that Muncie AAVE has been moving toward WVE, when the lack of constriction of postvocalic /r/ is considered.

3.2. Syntactic Features. For syntactic features whose potential environments were not difficult to define, previous observations and discussions of these features, their overt syntactic structures, and contextual clues were used as guidance in the definition of their potential environments. However, applying the principle of accountability to the analysis of syntactic features is not always easy (Sankoff and Thibault 1980; Weiner and Labov 1983). Labov (1982:87) has noted that "there are a number of variables that can be studied now by noting only each occurrence, but not each non-occurrence, since it has not yet been possible to close the possible set of variants." Also, speakers have different linguistic options to encode the same meaning (Milroy 1987), which again poses indeterminacy of defining the potential environments for certain syntactic features. Because of this elusiveness, ten features, such as habitual *be* and subject repetition, were analyzed only by their actual occurrences.

Table 6 and 7 present, respectively, the use of the syntactic features whose potential environments were not defined and whose potential environments can be defined in the speech of Muncie AAVE subjects. (-) in Table 6 means that there is no actual occurrence of a feature.

For three of the ten features in Table 6 there were fewer occurrences in the speech of 1993 subjects than in the speech of 1980 subjects. Three features did not have any occurrences. One feature, *been* used to express past action that has recently been completed, occurred only once respectively in the speech of 1980 and 1993 elderly subjects. Although three features, (1), (2), and (10), occurred more frequently in the speech of 1993 young subjects than their 1980 counterparts, the difference is too small to be linguistically relevant.

Table 6 Use of the Syntactic Features Whose Potential Environments Were Not Defined in the Speech of Muncie AAVE Subjects

Feature	1980 Y	1980 E	1993 Y	1993 E
1	1	1	5	1
2	1	1	2	1
4	(-)	(-)	(-)	(-)
5	(-)	(-)	(-)	(-)
6	(-)	1	(-)	1
7	(-)	1	(-)	(-)
8	(-)	(-)	(-)	(-)
9	(-)	7	(-)	3
10	(-)	4	(-)	5
17	1	30	10	10

Table 7 Percentages of the Syntactic Features Whose Actual and Potential Occurrences Can Be Defined in the Speech of Muncie AAVE Subjects

Feature	1980 Y	1980 E	1993 Y	1993 E
3	19 (12/63)	2.6 (14/542)	2.2 (13/611)	1.1 (5/437)
11	0 (0/9)	3.7 (19/511)	2.1 (3/138)	3.6 (11/304)
12	40 (4/10)	30.8 (113/366)	12.5 (20/160)	14.6 (22/151)
13	4.4 (2/45)	2.4 (23/925)	4.6 (16/347)	2.2 (10/442)
14	0 (0/2)	0 (0/38)	0 (0/13)	0 (0/25)
15	50 (13/26)	10.7 (16/150)	17.2 (36/209)	6.5 (7/108)
16	0 (0/3)	0 (0/13)	0 (0/28)	0 (0/17)
18	50 (1/2)	20.3 (11/54)	26.1 (6/23)	0 (0/36)
19	0 (0/1)	5.3 (5/93)	6.2 (3/48)	1.9 (1/51)
20	0 (0/1)	0 (0/94)	0 (0/48)	0 (0/51)
21	44.4 (12/27)	21.1 (37/175)	17.5 (13/74)	9.1 (9/98)
22	0 (0/15)	0 (0/264)	0 (0/39)	0 (0/59)
23	0 (0/7)	6.6 (1/15)	5 (1/20)	5 (1/20)

It can be seen from Table 7 that feature (14), (16), (20), and (22) did not occur at all. Feature (3), (12), (15), (18), and (21) occurred more frequently in the speech of 1980 young and elderly subjects than in that of 1993 young and elderly subjects respectively. The three exceptions are (11), (19), and (23) because of the low rate of potential occurrences of these three features in the speech of 1980 young subjects. Although (13) occurred nearly consistently in the speech of both young and elderly subjects of 1980 and 1993, the rate of occurrence is low--less than 5% in all groups.

Based on the data in Tables 6 and 7, we may say that syntactic features in the speech of Muncie AAVE speakers have not diverged from WVE in the last thirteen years. Even the data on the features that are believed to be unique to AAVE (Fasold 1981), such as (1), (3), (6), (13), (14), and (15), do not support the divergence hypothesis.

4. Summary. This study examined five phonological features and twenty-three syntactic features in the speech of thirty-two Muncie AAVE subjects. The goal of this study was to shed light on the convergence/divergence controversy over AAVE by examining the time-depth data on the speech of AAVE subjects living in a mid-size city in the United States with a relatively small African-American community.

On the basis of this study, it is evident that Muncie AAVE is not diverging from WVE or at least has not been doing so over the last thirteen years. The linguistic features, claimed to be unique to AAVE by Fasold (1981), occurred in small numbers, especially in the speech of the 1993 subjects. In addition, neither the speech of the young subjects nor that of the elderly subjects of Muncie AAVE evidences any innovative features, either phonological or syntactic. Indeed, to say that Muncie AAVE is not divergent is no doubt an understatement, since there is evidence that demonstrates that some features have been converging with WVE over the years, such as the phonological feature of the lack of constriction of postvocalic /r/ and the syntactic features of absence of copula-/auxiliary *be*, absence of concord of *be*, absence of third person singular suffix, personal pronouns used for demonstratives, and multiple negation.

Davis and Huang (1995:142) in their study on Muncie AAVE point out that AAVE "might exhibit regional and social variation like that found in the dialects of whites." Indeed, Harold Allen's (1991) suggestion that AAVE "itself may not be a monolith"[5] is clearly evidenced in this study, such that AAVE definitely has regional varieties. While AAVE in some places might be divergent from WVE, Muncie AAVE is not such a case; and its linguistic features, as Davis and Huang (1995:150) put it, "seem quite 'ordinary,' and more indicative of the subjects' working class socioeconomic status than anything like AEV [AAVE]." The results from this study in a "typical" American town could be more representative of the present status of AAVE in the United States, at least in most cities of the same size as Muncie. It also suggests that Labov and Harris' (1986:5) statement that "Philadelphia reflects a national trend in the black community towards continued linguistic divergence" is an inappropriate, if not an ungrounded, description of AAVE in the United States at the present time.

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[5] Personal communication with Lawrence M. Davis.

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COGNITIVE STRATEGIES FOR EXPRESSION OF THE COPULA: A CROSSLINGUISTIC APPROACH

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1. Introduction

The copula is distinguished crosslinguistically by a number of recurring characteristics. Copular sentences are considered to be equative, with nominals taking on roughly equal status. In languages where case is morphologically marked, all nominals "equated" in a copular phrase are in the nominative. Yet the copula, even when expressed overtly, and even when it fills the syntactic position of a verb, is very unverb-like in its function.

If a prototypical verb expresses a specific relationship between participants A and B, the copula is the most empty of all verbs semantically, since it is merely the existence of a relationship that is asserted, and there are no other particulars. It is not simply that the copula is intransitive, and thus automatically further from the prototype. An intransitive verb of motion, of action and even one expressing a mental state is far more concrete in its purport than one conveying a relationship of existence, identity or class membership. Not that existence, identity and class membership are, strictly speaking, accurate descriptions of the semantic relations that hold in such sentences. We will see that they are in fact metaphors by which the grammatical coding of copular expressions is organized. The forms are based on these paradigms; the semantics is richer. (1) below lists recurring logical metaphors on which copular morpho-syntax is based.

(1)
(a) 'A exists' [in many languages we must specify *where*]
(b) 'A is identical to B'
(c) 'A is a member of the class B'
(d) 'A is a member of the class of things belonging to B'.
[in (d) B would be in an oblique case, since this a variation on (a):' A is to B']

The exact configuration of semantic relationships conveyed by a single copular expression varies from language to language. The present study identifies typological traits of languages that correlate with copular function. For instance, languages with strong, morphologically expressed case systems, whether agglutinative or inflectional, tend to omit any overt expression of the copula in the present tense in sentences expressing identity. When the two participants, A and B, are both in the nominative, the relationship between them is one of metaphorical identity, and the expression of the copula as a morphologically full verb is deemed superfluous. On the other hand, in such languages, if existence is being expressed, an overt copula is used, since the enunciation of the word for a single participant, A, tends to elicit the response 'What about A?' Single word propositions are rare. They are even rarer when the word is nominal.

In addition to correlations between copular use in typologically similar languages, we will also take account of parallels in copular use that transcend typological similarities. We will see that languages as different from one another as French and Chinese sometimes show congruent patterns in the use of the copula, patterns that they do not share with more closely related languages or with languages whose morphosyntactic typology we might suppose to be more similar.

The classification of a copula as a type of verb is in itself debatable. In many languages the relation of identity, class affiliation, or existence is expressed syntactically rather than morphologically. When its expression is morphological, the copula does not convey all the distinctions of person, number and gender normally marked in a verbal paradigm, or the syntactic position of the copula is different from that of verbs in the language, and the copula is considered a'particle,' not a 'verb'.

In addition to the semantic relations listed in (1), the copula is also simultaneously recruited to express the following in a number of languages:

(2)
(a) Affirmative
(b) Emphatic or echo verb
(c) Interrogative particle or expression
(d) Auxiliary verb
(e) Definitizer
(f) Demonstrative

Expressions either asserting or asking about the truth value of a previous statement may use a form of the copula. By the same token, that which is asserted to exist or to be a token of a type is sometimes deemed definite. It is a short step from a definitizer to a demonstrative. And the road from a demonstrative to a pronoun is likewise not too long.

For the purposes of this discussion, I will classify something as a copula on the basis of the semantics in (1) alone, but once it is so classified, I will list any functional overlaps in (2).

Figure 1 lists traits of the copula in a few sample languages. For this broad view, 'HEBREW' may be seen as encompassing both modern and ancient Hebrew. Responses tabulated would work for either. The classical Chinese forms are given in parenthesis.

Figure 1 presents a small part of the variety of ways in which copular functions are expressed. The examples are all in the third person present, maximizing the similarities. It is important to note, however, that in Hungarian an overt copula would be used in any wperson other than third. Also, where A and B are pronouns rather than nouns, certain ambiguities develop in Modern Hebrew and in Turkish and to a lesser extent in Russian, as to the identity of the pronoun and the copula.

The rows of Figure 1 correspond to the subdivisions of (1) above.

(1)
(a) 'A exists' -- **ROW 1**
(b) 'A is identical to B' -- **ROW 2**
(c) 'A is a member of the class B'-- **ROW 3**
(d) 'A is a member of the class of things belonging to B'. -- **ROW 4**

TABLE OF EXPRESSIONS OF EXISTENCE, IDENTITY & POSSESSION

	CHINESE	ENGLISH	FINNISH	FRENCH	HEBREW
1	[LOCATION] yòu A	There is A	on A	Il y'a A	ješ A
2	A shi B (A B ye)*	A is B	A on B	A est B	A B (A hu B)
3	A shi B (A B ye)*	A is (a) B	A on B	A est B	A B (A hu B)
4	B yòu A	B has A	B-ade on A	B a A	ješ le-B A

*(Common shading within respective boxes of a language indicates use of a common morpheme. The * refers to Classical Chinese.)*

	HUNGARIAN	KOREAN	RUSSIAN	TURKISH	VIETNAMESE
1	van A	A-nom. iss-dec.	jest A	A var	Cò art. cl. A
2	A B	A-top. B-dec.	A B	A B	A là art. cl. B
3	A B	A-top. B-dec.	A B	A B	A B
4	a(z) B-dat. van A-poss.	B-top. A-nom. iss-dec.	u B jest A	B-gen. A var	A cò art. cl. B

Figure 1

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2. The Relationship Between Being and Having

For the purposes of this discussion, we will continue to look at the copula in terms of a pseudo-logical framework. This examination is to be distinguished from a pragmatic and discourse oriented approach, since we are at present concerned with the fossilized logical metaphors from which highly bleached copulas are derived. From this viewpoint, we will find that certain patterns emerge which are almost unaffected by vast differences in language typology.

There seems to be a marked morphological correlation between boxes 1 (existence) and 4 (possession), as opposed to box 2 (equivalence, class membership) and box 3 (class membership, attribute), which are also closely linked. In other words, in Hebrew, Russian, Turkish, Chinese, Korean and Vietnamese, the same morpheme that is used to signify existence (jēš, jest, var, yŏu, iss and cò) appears also in the expression for possession. On the other hand, any morpheme used for class membership or attribution statements is a different word altogether from that used for existence and possession.

The main exception here is English, where boxes 1, 2 and 3 share a morpheme, a form of the verb 'to be', whereas box 4 uses a form of 'to have'. (Finnish is unusual in that all four boxes use 'on'.) 'To have' in English departs from the equivalence paradigm; 'to have' takes an object.

Of course, English is one of many languages to use a specialized transitive verb to express possession. Several other Indo-European languages do so as well: German and French, to name two. Indo-Europeanists are quick to note that the verbs 'have' and 'haben' in German and English are entirely unrelated to the French 'avoir'. The Latin 'capere', meaning to grasp, is the Italic reflex of its Germanic counterpart in 'haben'.

Be that as it may, PIE does not have a reconstructable specialized verb meaning 'to have'. Both 'habere' and 'haben' are later developments. The semantic path, whereby 'to hold' means 'to have', is not too difficult to grasp. Thus Spanish 'tener' meaning 'to hold' also means 'to have'.

(3) Tengo muchos libros
'I have many books.'

(4) Tengo un libro en la mano.
'I'm holding a book in my hand.'

If we turn from English, and other languages with a specialized verb for possession to an examination of Chinese and Hebrew, we find an interesting contrast: Hebrew uses jēš for both existence and possession, and Chinese uses yŏu in its expression of the same two concepts. However, there is a decided difference between the semantic/logical meaning to be assigned to the respective morphemes. Whereas in Hebrew, 'A exists' and 'A is to B' (= 'B has A'), in Chinese 'the world has A' (= 'A exists') and 'B has A'. So that we might decide to gloss jēš as 'is' and yǒu as 'has'.

(5) jēš elohim bəjisra?el　　　　יש אלוהים בישראל
is god in-Israel
'There is a god in Israel.'

(6) shìjie-shang yǒu shen.
world -place has god
'There is/are god(s)."

All of the above distinctions are significant in the framework of the internal semantics of the languages discussed, even though we may freely concede that speakers are not normally aware of the logical or relational mechanism that enables them to express the ideas of possession or existence.

If we use a container metaphor to explain the Chinese example, we might think of yǒu as implying that B contains A. A different Chinese verb, zài 'to be located at', expresses the opposite relation, that 'B is contained in A.' But when containment is not at issue, Chinese uses shì.

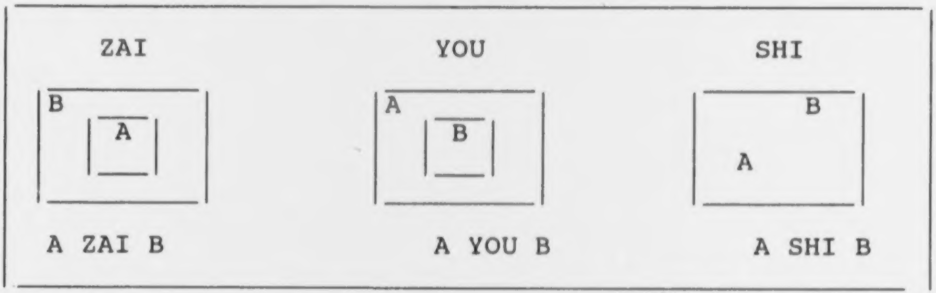

Figure 2

Without resorting to a formal model of case, we can see that the relations described by the three verbs above are different. The first two involve some sort of hierarchy and the third does not.

Examination of the French may clarify the difference between the Hebrew model of existence assertions and the Chinese. While 'il y'a' is admittedly an idiom whose component parts are bleached and fused and not normally segmented by the speaker as separate elements, we will analyze them separately, in order to understand the relational mechanism employed by French to express existence.

(7) Il y'a un homme.
he there has a man
'There is a man.'

The pronoun at the beginning of the sentence is empty semantically, but not grammatically. That is, no one imagines a person or entity that 'has a man'. But the verb 'avoir' agrees with the pronoun, and the pronoun serves as the subject of the sentence. Even though case is not morphologically marked on the noun in French, the object of the sentence is indisputably 'un homme'. Grammatically, we are dealing with a transitive verb, and the thing that exists (here, a man) is the object of that verb.

Not so in Hebrew. The subject of jēš is always the thing that exists. This is evident not from verbal agreement, since jēš does not normally vary, but from the fact that the direct object marker is never placed before the noun whose existence is in question.

The empty 'il' in French is functionally distinguishable from the so-called dummy 'there' in English. The use of 'there', as opposed to some other word, is influenced by the need to provide a location for existence and is analogous to the 'y' in French. That is its semantic function. While some of the semantic content of 'there' is bleached, a trace of it remains. It fills the same function as the Chinese requirement of providing location in every existence statement. Thus, on the semantic level 'there' is not a dummy at all. The syntactic reason for its obligatory inclusion in the phrase is that English does not tolerate verb-initial statements. The placement of 'il' at the head of the phrase in French is similarly motivated. But here the analogy ends. In English, A is the subject of 'there is A'. In French, A is the object. 'Il' is semantically a dummy, but syntactically an important element. English 'there' is a dummy syntactically, though its semantics is still functionally present.

Two groupings emerge in the use of copular grams: possession is linked to existence, and languages vary in which of the two concepts is primary. On the other hand, identity and class membership are almost universally equivalent in form. English is the only language in Figure 1 that has a unique for possession. Yet it has the same form for existence and identity.

A separate issue entirely is one of hierarchy or lack thereof. Identity implies no hierarchy in any of the languages included here. Possession does, and when possession is linked to existence, the question arises: which is primary, the possessor or the possessed?

Even though Chinese has no overt case as such, its use of yǒu, rather than shì, places it in the group of languages that consider the participant whose existence is being stated to be subordinate to some other participant. When a language uses this strategy, it distances statements of existence and possession from those of identity and class membership. In our table of ten languages the following members make this distinction: Chinese, English (only for possession, not existence), French, and Vietnamese. The following languages did not make the distinction between possession/existence and identity/class membership: English (for existence only), Finnish, Hebrew, Korean, Hungarian, Russian and Turkish.

This leads us to an interesting discovery concerning the symmetrical relationship which appears to hold universally, where identity and class membership are concerned. Never is A subordinate to B, or B to A, when the statement means essentially 'A is B' or 'A is a B.' This is a slightly curious fact, especially when you consider that class membership is logically a hierarchical system. In other words, 'Spot is a dog' does not imply 'a dog is Spot'. So why is this hierarchy not reflected in the grammar?

The answer appears to be that metaphorically, and with respect to the use of the copula, all class memberships are viewed as a form of equivalence. In terms of the container metaphor, this makes a certain amount of intuitive sense. You can take the dog out of the world he inhabits, but you cannot take the canineness out of the dog. Not without a transformation. The intangible nature of class membership makes its association with equivalence acceptable.

3. Semantic Sources for the Copula: From the Concrete...

So far, we have examined the copula from the perspective of a seemingly synchronic analysis of cognitive strategies and semantic function. In fact, no valid investigation is truly synchronic, because when we dissect the motivation behind what is essentially an idiom, we are examining strategies developed by speakers over a long process of language evolution.

At this point, I would like to discuss grammaticalization of the copula overtly. Grammaticalization is the process whereby grammatical paradigms and templates are formed. It usually involves the recruitment, bleaching and reduction of previously independent, semantically robust lexemes.

When we talk about grammaticalization, we often have in mind the journey of a gram from a very concrete source, such as a body part, to a more abstract use, such as a preposition. While I have, in previous work, explored some alternate routes that grammaticalization can take, it will be helpful to note the sources of the copula that fit within this traditional view of grammaticalization.

Copulas often come from verbs that describe position. Thus, in Spanish, the innovative verb *estar* has as its source the Latin *stare*, meaning 'to stand'.

Tarahumara, a Southern Uto-Aztecan language spoken in Northern Mexico, requires the speaker to specify the posture or stance of a participant whose existence or location is being communicated. A participant cannot simply 'be': it either stands, lies, swims or squats. (Copeland MS).

The Hebrew verb 'to be' היה\הוה, *haja/hawa* appears to have been derived from חיה\חוה *xaja/xawa*, meaning 'to live'. It is a short step from living to merely existing.

While such sources for a copula naturally arise in the process of deriving a new paradigm for the expression of equivalence or possession, in time, worn-out copulas can become even more abstract, to the point that their significance is purely grammatical.

4. Semantic Extensions of the Copula: ... to the Abstract.

The story of how copulas become auxiliary verbs is so well known to anyone familiar with Indo-European languages that it hardly bears repeating. A nominalized form of an active verb, a participle, for instance, is coupled with a finite form of a verb of existence or possession ('to be' or 'to have', 'etre' or 'avoir', 'sein' or 'haben'). In time this combination is interpreted as a new tense, with the copula doing the grammatical work of agreement, while the participle carries the semantic load.

(8) He is judging.

In sentence (8) above 'judging' was originally a nominal element reinterpreted as part of a verbal tense. This is significant to our inquiries into the copula in the following way: when a language doesn't have an overt copula in the present tense or non-perfective aspect, the only element that may be recruited to serve this purpose is the pronoun.

(9) **hu šofet** הוא שפט
he judge
'he's a judge' or 'he is judging'

5. Conclusions

We have seen that the patterns of use of the copula vary little from one language to the next and that the variations that can be identified do not pattern with morphosyntactic typology or genetic grouping. We have learned that:

(a) Assertions of existence are often expressed by the same mechanism as expressions of possession, (nine out of ten languages in Table 1, with the notable exception of English),

and

(b) Existence is seen as a special case of possession, where B is primary over A, whether this primacy is expressed by morphological case or other relational means, (e.g. Chinese, French, and Vietnamese.),

or, in other languages,

(c) Identity is seen as a special case of existence, where A is primary over B (e.g. Finnish, Hebrew, Hungarian, Korean, Russian, Turkish.) ,

and

(d) Equivalence of two nominals is a logical metaphor that is readily extended to class membership and attribution.

Above all, we have seen that the copula is not so much a verb, as the barest relation between participants. Even when grammatically coded as a verb, the copula is the least verb-like of all verbs. It is essentially a linker.

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CROSS-CULTURAL FACTORS IN ESL READING:
THE RELEVANCE OF RELEVANCE THEORY

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1. Introduction.

In the view of many scholars, the reader's role in reading comprehension is now that of being an active participant in deciphering the meanings of a text (contrary to the previous view of being a passive recipient of linguistic forms). Active readers are viewed as bringing to the text their rich background knowledge, building up meaning out of a text by connecting verbal symbols with their associations and ideas. Moreover, the linkage of their own experiences with words enables the reader to construct a new experience (Rosenblatt 1978).

With this new understanding of what goes on in reading, many English as a second language (ESL) teachers and researchers have begun to study the relationship between background knowledge and reading comprehension. Specifically, their attention has been focused on the effects of culturally specific background knowledge in ESL reading (see e.g. Steffensen, Joag-dev, & Anderson 1979, Johnson 1981, 1982, Carrell 1981, 1983, 1987, Pritchard 1990, Erwin 1991, and Kang 1992). Steffensen et al. (1979) investigated two groups of people, Asian Indians and Americans. The subjects were asked to read two letters: one about an Indian wedding and the other about an American wedding. It was taken for granted that all the subjects were familiar with their own cultural customs of marriage. The result showed that subjects' familiarity with their own cultural background helped them a great deal to comprehend their reading passage. While dealing with unfamiliar cultural concepts, the subjects tended to use their own cultural background knowledge to interpret the other country's wedding customs.

In understanding the nature of these differences, researchers in ESL reading, like researchers in first language reading, turned to schemata theory for explanations. According to schema theorists, as Pritchard (1990:275) summarizes:

> Knowledge is stored in schematic structures, or *schemata*, which are organized representations of one's background experiences. These schemata are influenced by the culture in which one lives. Schemata provide an interpretive framework which a reader may utilize when reading. Readers use their background knowledge, the situational context, and the cues provided by an author to construct an interpretation of the meaning of a text.

Schemata theory, therefore, predicts the difficulties a reader encounters while dealing with unfamiliar cultural specific background. In this study, I continue to investigate the effects of cultural knowledge in reading, but in addition to schemata theory, I also use relevance theory to explain what is going on in reading when the new information interacts with the reader's old context, and how different interpretations and understandings are produced as a result of the interaction, as is shown in instances of elaborations and distortions.

Relevance theory is a newly-developed theory in pragmatics. Like other theories of pragmatics, it recognizes the problem of the linguistic form of an utterance underdetermining its interpretation. "Every utterance has a variety of possible interpretations (that is, combinations of explicit content, context and implicatures), all compatible with the information that is linguistically encoded" (Smith & Wilson 1992:4). In confronting this problem, relevance theory claims that human cognition is relevance-oriented. We pay attention only to the information that is relevant to us. Relevance here means that an utterance is relevant to the hearer only if it creates contextual effects. Contextual effects are created by an utterance if: (1) it strengthens an existing assumption; (2) it contradicts and eliminates an existing assumption; and (3) it combines with an existing assumption to come up with a new contextual implication, that is, a logical implication (Sperber & Wilson 1988). Besides requiring that as great a contextual effect as possible be created, relevance theory assumes a minimal processing effort. A notion of optimal relevance defined by Sperber and Wilson (1986) summarizes effect and effort as:

> An utterance, on a given interpretation, is optimally relevant if and only if:
> (a) it achieves enough effects to be worth the hearer's attention;
> (b) it puts the hearer to no gratuitous effort in achieving those effects (Smith & Wilson 1992:5).

Context plays an important role in relevance theory. In defining context:

> The idea is that there is a small immediately accessible context consisting of the most recently processed propositions, which forms the basis for the interpretation process, and this minimal context is then expanded by reference to earlier discourse, to encyclopedic knowledge, or to sense perception. Each of these extensions of the context will, by hypothesis, be motivated by the desire to optimize the relevance of what has been said (Smith 1989:75).

According to Sperber and Wilson (1988), "the context in which a given assumption is interpreted" is not determined; there is a possibility that "context formation is open to choices and revisions throughout the comprehension process" (137).

In this paper, I argue that when newly-presented culturally specific background knowledge interacts with their existing assumptions, subjects automatically search for the relevance of new information in their contexts. In the process of making meaning, it is hypothesized that the success of achieving relevance depends on the subjects' context. In the study, I intend to address the following questions:

(1) Does a reading passage with a familiar cultural background facilitate reading comprehension?

(2) What is going on when newly-presented information interacts with readers' existing assumptions in their context (where the new information could be either culturally familiar or culturally unfamiliar)?

(3) Can we use relevance theory to understand and explain the nature of differences if there are differences in comprehension between culturally familiar content and culturally unfamiliar content?

To answer these questions I used subjects' recall. Recall protocols were used to see whether cultural background information affected subjects' reading comprehension, and they were also used for an analysis of the role of cultural knowledge in comprehension. In the discussion below I tie in relevance theory to explain what was found in the recall protocols.

2. Analysis

2.1 Subjects

Subjects were chosen from two very different culture backgrounds: eight Chinese subjects and twelve American subjects participated in the study. The Chinese subjects were intermediate-level ESL students attending the intensive English program at Bowling Green State University. Five of them were male students and three of them were female students. Their TOEFL scores ranged from 560 to 583. Their majors included chemistry, biology, nutrition, and history. The American subjects were from a freshman English writing class. All of them were native-born American students. Seven were male students and five female students.

This particular group of Chinese subjects were chosen because they had been in the United States for only a few months when the study started, so they did not have extensive exposure to American culture. Most of them were science majors in universities in China, and did not take American culture classes there.

2.2 Materials

Two passages were selected to represent the two different cultures (see appendices). Both Chinese and American passages were written in English. The Chinese passage was from the magazine, *China Today,* entitled "Year of the Horse." It was an expository essay describing some well-known features of the horse in Chinese culture, and some Chinese historical incidents associated with it. It generally represented Chinese popular culture. As the original article was a little long, some sentences and paragraphs were cut, but it still retained the unity of the article. Similarly, the American passage was chosen to represent aspects of American popular culture. An article about astrology was selected from the magazine, *People Weekly*, entitled "The stars do--and don't--come out for astrology." The article mentioned Ronald and Nancy Reagan "as astrological chart watchers" and it contained some short stories of how astrology affected the lives of famous stars. It was expository writing in style too. Rhetorically speaking, both texts contained general ideas followed by specific examples. However, concerning cultural content the two passages were completely different. The Chinese passage contained a lot of Chinese cultural concepts, and the American passage was also full of culturally loaded information.

2.3 Design and Procedures

Subjects were asked to read the passage with the familiar cultural content first. They were given a total of twenty minutes to read each passage and recall information from the passage without looking back at the passage. Subjects were instructed to read the passage two times, reading it at a comfortable speed and to give a signal when they were done. Then they handed in the reading passage and received a debriefing questionnaire and sheets for recalling information. They were asked to paraphrase the passage and write down as much as they could remember from the reading, recalling information as exactly as possible. They were asked to use complete sentences. The idea and procedures for recall protocol were from Carrell (1987) with some modifications to suit the present study.

A one-page debriefing questionnaire was used to give subjects a chance to self report how much of the information in the reading was familiar to them before they read it using a 1-5 scale (with 1 as the least and 5 as the most), how much knowledge of horse images in Chinese culture and how much knowledge of astrology they had before they read it, and how much difficulty they had in terms of grammar, vocabulary, and organization. The idea and form of debriefing questionnaire was from Carrell (1987) with some changes to fit the current purpose.

2.4 Measuring

The scoring consisted of mean values of variables on the debriefing questionnaire based on a 1-5 scale and mean percentage scores from recalled information.

The recalled information was analyzed for the number of idea units recalled from the original text. The idea units were previously identified by me. One simple sentence was considered one idea unit while an embedded sentence and a compound sentence were judged as having two idea units. The Chinese passage had 15 idea units, and the American passage had 16 idea units. Scores were given according to the presence or absence of the idea units.

3. Results

The mean percentage score showed that the Chinese subjects recalled more idea units from the Chinese passage than from the American passage, and the one-tailed paired t-test showed that the difference is significant ($t=10.89$, $p<0.001$). The American subjects recalled more idea units from the American passage than from the Chinese passage, and the difference is also significant ($t=2.65$, $p=0.011$). The mean percentage score of recall protocols is shown in Table 1.

Table 1: Mean Percentage of Recall Protocols

Chinese subjects:		American subjects:	
Chinese passage	American passage	American passage	Chinese passage
60.81%	21.90%	57.10%	43.13%

Subjects from two different cultures received different mean scores on the questions in the debriefing questionnaire as shown in Table 2.

Table 2: Mean Score (1-5 scale) of Variables in Debriefing Questionnaire

How much of the information in the reading was familiar to you before you read it?

	Chinese subjects	American subjects
American passage	2.00	2.15
Chinese passage	4.50	1.54

How much knowledge of astrology/ horse images in Chinese culture did you have before you read it?

	Chinese subjects	American subjects
Astrology	2.00	2.46
Horse images	4.50	1.23

How much difficulty did you have in terms of grammar, vocabulary, and overall organization?

	Chinese subjects	American subjects
Familiar content	2.25	2.31
Unfamiliar content	2.88	2.15

On the question "How much of the information in the reading was familiar to you before you read it?" 7 out of 8 Chinese subjects reported that they knew all the information in the Chinese passage; 8 out of 12 American subjects reported that none of the information in the Chinese passage was familiar to them. Concerning the American passage, 6 out of 8 Chinese subjects reported that none of the information in the American passage was familiar to them; 8 out of 12 American subjects reported that none of or very little information in the American passage was familiar to them, while 4 of them reported that they were quite familiar with the American passage. Although the American subjects self-reported that not much information in the American passage was familiar to them, they nevertheless recalled more idea units (M = 57.10) from the American passage than the Chinese subjects did (M = 21.90) from the American passage.

On the question "How much knowledge of horse images in Chinese culture did you have before you read it?" 10 out of 12 American subjects said that they did not know anything about the horse in Chinese culture. The Chinese subjects reported that they knew a lot about Chinese horse images. On "How much knowledge of astrology did you have before you read it?" the American subjects had slightly higher mean scores (2.46) than the Chinese subjects (2.0). In spite of the fact that both groups of subjects claimed that they had relatively little knowledge about astrology, the American subjects recalled much more idea units from the passage about astrology than did the Chinese subjects.

On the question, "How much difficulty did you have in reading in terms of grammar, vocabulary, and overall organization?" both groups of subjects reported almost the same degree of difficulty for both culturally familiar and culturally unfamiliar passages. This was a good sign to eliminate the interference of formal difficulties in testing the effects of cultural background knowledge.

4. Discussion

The results of the study suggest that content schemata does influence how reading is comprehended and remembered. It is evidenced from the study that when the subjects read a passage with familiar cultural content, they recalled more information from that passage than they did from a passage with unfamiliar cultural content. This is especially obvious among the Chinese subjects. They recalled more information after they read the passage about *Year of the Horse* than they did after they read the passage about American astrology.

When the recall protocols of the two groups of subjects were compared, some interesting examples of elaborations and distortions were revealed. According to Carrell (1987):

> Elaborations are culturally appropriate extensions of the text, produced when someone knowledgeable about the culture provides additional culturally correct information not found in or logically inferable from the text; distortions are culturally inappropriate modifications of the text, often outright intrusions from another culture, in which unfamiliar ideas are interpreted, remembered, and recalled in terms of another cultural schema (470).

As Steffensen et al. state, "the actual instances of intrusions, gaps, inferences, and distortions in text recall have provided the most compelling evidence of the role of background knowledge in discourse comprehension and memory" (20).

I will argue, from the point of view of relevance theory, that the instances of elaborations and distortions are evidence of interaction between the newly-presented information and the reader's context (background knowledge). The reader comprehends and processes new information, aiming at achieving contextual effects in his/her context. That is, in comprehending new information one automatically searches for relevance in one's own context (background) to see if the new information affects that context in any one of the following ways: whether it strengthens existing assumptions; whether it contradicts those assumptions; or whether it results in reaching contextual implication, a logical implication, and a new conclusion. Relevance theory states that the primary goal of the comprehension process is to "obtain from each new item of information as great a contextual effect as possible for as small as possible a processing effort" (Sperber & Wilson 1988:141-142).

In discussing relation between relevance and context in the comprehension process, Sperber and Wilson (1986) argue that "In verbal comprehension in particular, it is relevance which is treated as given, and context which is treated as a variable" (142). We treat relevance as given because "people hope that the assumption being processed is relevant (or else they would not bother to process it at all)" (142). To achieve relevance, we need to select a context which will maximize relevance. In this sense, context is a variable, changing from immediate, initial context to extended context, obtaining relevance as a goal.

As relevance is defined as a relation between a given assumption and an existing context (Sperber & Wilson 1988), context is an indispensable part of the interaction to achieve maximum relevance. However, because of the constraints of a reader's context, due to his or her particular cultural background where specific cultural concepts are developed, shared, and practiced, the reader's comprehension of culturally unfamiliar content will be different from that of culturally familiar content. This is where elaborations and distortions come in.

We see distortions as a sign of interaction between new information and unaccessible context for that information. Sperber and Wilson (1988:143) state that a new assumption A "may be relevant in some, all or none of the contexts accessible to an individual at a given time, depending on whether some, all or none of these contexts already contain or imply a token of A, and on the relative strength of old and new tokens." If a new assumption is contained (or implied) by none of the accessible contexts, A has no contextual effect and therefore A is irrelevant in all the accessible contexts (143). According to Sperber and Wilson, "there is no point in extending the initial context in searching for relevance" in this case (143). However, the instances of distortion in this study demonstrated that the subjects treated relevance as their primary goal in the comprehension process. Although they failed to achieve contextual effect in their immediate, initial context, they continued their search by extending their context. In this case, they used their familiar cultural context to achieve maximum contextual effects. In comprehending the Chinese passage, one American subject recalled:

> Confucius is a heavily celebrated figure in the Chinese culture. Anything associated with Confucius will certainly be viewed as significant by the Chinese people. Since he did travel from village to village by a horse drawn carriage it is not surprising that the horse is viewed as an important symbol.

The only information about Confucius in the passage is that "The great Chinese philosopher Confucius is often pictured riding in the horse-drawn carriage he used to travel from one small kingdom to another back in the 6th century B.C." which serves as an example of a horse as a close partner of human beings in transportation. From what the subject recalled, we are able to argue that he did not have various horse images associated with Chinese culture available in his context, although he had a general idea about the great philosopher Confucius in his context, as Confucius is world famous for his great influence on Eastern culture. Because he lacked available context for the Chinese horse image, the subject was not able to achieve relevance. It is evidenced from his recall protocols that he turned to extended context for relevance, contexts such as his familiar cultural knowledge, and his encyclopedic knowledge. We may analyze his existing context in the following statements:

(1) Confucius is a very important figure in Chinese culture.
(2) The Chinese horse is viewed as an important symbol.
(3) Confucius did travel by a horse drawn carriage.
(4) Anything associated with important persons is important, too.

He therefore came up with a contextual implication that:

> The Chinese horse was viewed as an important symbol because an important figure, Confucius, once used it for travel.

By extending his context to include his own familiar cultural assumptions he was able to make the new information relevant, reaching a contextual implication. The example showed that he did set relevance as his goal of comprehension, searching for meanings and effects in his context, and he was successful in achieving his desire. What he lacked is the assumption of horse images as anchored to a particular culture--such as the horse's kindness, intelligence, loyalty, hard work, and human companionship--which stopped him from reaching a culturally appropriate understanding. Statement (4) of his "extended context" can be argued to be very culturally specific. In American culture, fame, success, and important figures are highly celebrated and things associated with them are highly valued. By motivating this assumption, he was able to make sense out of the text.

From this analysis we see that as the reader's different levels of extension of context are prerequisite for inferences and understanding, new information can have meaning and relevance only when it interacts with old contextual assumptions to achieve contextual effects, and that the lack of rich culturally specific background knowledge in the reader's context does lead to misinterpretation. In this text, the horse is considered an important symbol, not because Confucius once travelled by a horse-drawn carriage, but because of its good characteristics, its partnership with people, and its performance in transportation and warfare. It is unfamiliarity with these cultural details that stop the reader of another culture from making accurate connections and inferences.

Another American subject recalled:

> Confucius, a famous Chinese philosopher, is often pictured riding on top of a horse.

This is another example of providing culturally inappropriate modifications of the text, and yet another example of a reader's searching for relevance as his goal. The subject gave a vivid picture of a cowboy riding on top of a horse. Confucius was a very gentle scholar, reading books and giving lectures. He was such a gentle man that Chinese people would not imagine him riding on top of a horse. Moreover, the Chinese passage says it was a carriage, and therefore referents the Chinese image.

The claim that human cognition is relevance-oriented, and that we only pay attention to what is relevant to us works in comprehending, remembering, and recalling a reading passage. The recall protocols showed that subjects remembered and recalled those things that were most relevant to them, things that brought contextual effects. In the above case, *riding on top of a horse* was more relevant to the subject than *riding in the horse-drawn carriage,* and therefore was remembered and recalled as such, since the former achieved contextual effects by strengthening the subject's existing assumption that a man, a famous man, always rides on top of a horse like a hero.

While distortion is due to unavailability of new information in accessible contexts, elaboration is evidence of availability of new information in accessible contexts. There are examples of Chinese subjects providing additional information about the former president Reagan and his wife Nancy's intimate relationship with astrology. Reagan and Nancy's relationship with astrology is world famous and therefore it was not surprising that the Chinese subjects were able to appropriately provide additional information about it. One subject recalled:

> She [Nancy] selected special dates and decided what she was going to do according to her stars.

Another wrote:

> People believe Ronald Reagan and Nancy do a lot of political stuff according to astrology.

The text only provided one piece of information; that is, "As astrological chart watchers, Ronald and Nancy Reagan are in stellar company." The above recalled information is considered appropriate extensions of the text, produced because the subjects had this in their contexts. To use relevance theory to explain this phenomenon, the subjects processed the new information and put it into their contexts, searching for relevance. As this information was accessible in their context, they were able to come up with the contextual effect, strengthening their existing assumption, and coming to the conclusion that Ronald and Nancy Reagan are assuredly astrological chart watchers, and they definitely are in stellar company. During the information process, subjects activated their existing assumptions in their context, and elaboration could be taken as what the subjects had selected from their context to achieve relevance; that is, a record of selected existing assumptions. It could also be taken as a interaction of new information and old existing assumptions. In this particular case, we notice that the new information did strengthen their existing assumptions about Reagan and Nancy's relationship with astrology and therefore it achieved contextual effect.

The tendency to add more information is further illustrated by the following recall protocols by American subjects:

> Many famous couples and stars, such as Ronald and Nancy Reagan, have used astrologers to help them along in their lives.
>
> The stars can predict a lot of things. Astrology is a study of the stars that many people are very interested in.
>
> Prince Andrew and Fergie both had their horoscopes read before their marriage; on the other hand, Princess Diana had hers read, but without Prince Charles, and now their relationship on the rocks.

The passage did not mention anything about the relationship between Diana and Charles. The American subjects, therefore, provided the additional and culturally appropriate information that Diana and Charles's relationship was on the rocks. The Chinese subjects did not go that far because they probably did not have that much detailed background knowledge in their context.

So far I have discussed elaborations and distortions by applying relevance theory. We note that in reading comprehension, the readers actively connect new information with their context, aiming at relevance to build meanings out of a text. Both elaboration and distortion are signs of reader's constant efforts to search for and achieve relevance. In searching for relevance, context plays an undeniable role in maximizing contextual effects. A rich context allows contextual effects to actually happen and to facilitate comprehension; a limited context either stops contextual effects from actually happening or leads to misunderstanding, and therefore hinders comprehension.

The study suggests that English as a second language learners should accumulate English cultural background knowledge in order to be proficient readers. Teachers should provide students with a lot of cultural input, to help students build up a rich context to face new culturally-oriented information in their reading. It is important for both ESL teachers and students to realize that to know a language means to know the culture associated with the language, rather than only being competent in grammar and vocabulary of a language. They should strive for a rich cultural background in order to reap a fruitful harvest of rich comprehension.

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APPENDICES

The stars do--and don't--come out for astrology

As astrological chart watchers, Ronald and Nancy Reagan are in stellar company. Prince Andrew and Fergie reportedly discussed their charts with an astrologer before their marriage. Princess Diana has also consulted an astrologer, apparently without Charles. "A pity," says one royal watcher, who seems to believe in the stars' power to guide relationships, "Because I think it would be helpful."

There is also a galaxy of Hollywood celebrities who set store by the stars. "I do people who are up for Academy Awards," says syndicated horoscope columnist Joyce Jillson, who was wrongly identified for a time as Nancy Reagan's secret "Friend" and who claims to have advised the 1980 Reagan campaign on its choice of vice-presidents. Common in her practice, she says, are questions such as: "Should I spend money for an Academy Award campaign? Do I have the potential to win?"

Alana Stewart admits she was skeptical about astrology until a chart reader advised her to keep then-husband George Hamilton off any airline flight with "7" in its number or departure time. The one time George ignored the advice, and took off at 7:30, the plane made a crash landing. "That made me a believer," says Alana.

Few in Tinseltown are eager to flaunt their astrological leanings these days, however. While the astrologers, eager to boost their ratings, claim every star since Lillian Gish as a client, the celebrities, put off perhaps by Nancy Reagan' s star-crossed office politics, demur.

Year of the Horse

By the Chinese lunar calendar, this is the Year of the Horse, so images of the horse are now appearing on calendars, stamps, greeting cards, posters, and in folk art items of every size and description. In fact, the power, beauty and grace of this animal has been a popular theme of artists for most of Chinese history.

Besides being an image of strength and beauty, the horse has always had a good reputation in China for its kindness, intelligence and loyalty. Many common sayings in the language are based on horse metaphors. The Chinese words *ma bu ting ti* (a horse running without a halt), for instance, is used to describe someone who goes about a task energetically, without a pause.

The horse has from ancient times been a close partner of human beings in their economic activities, transport and warfare. The great Chinese philosopher, Confucius, is often pictured riding in the horse-drawn carriage he used to travel from one small kingdom to another back in the 6th century B.C.

Outside White Horse Temple at Luoyang, Henan province, stand two horses carved of stone in the 10th century. The stone figures commemorate an old story about how Buddhism came to China. The emperor of the time is said to have sent someone to India to study Buddhism and fetch back religious scriptures, and he returned to China riding on a beautiful white horse.

In ancient China people loved the horse, and modern Chinese are not far behind them. Depictions of horses in one form or another are popular decorations in many homes. This will be especially true in this Year of the Horse.

II

SYNTACTIC STUDIES

SYNTACTIC SPECIFICATION OF MORPHOLOGICAL CATEGORIES: GOVERNMENT *VERSUS* DETERMINATION

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0. *Introduction.* In both traditional and Bloomfieldian/Neo-Bloomfieldian grammar, the term GOVERNMENT refers to a syntactic relationship in which one member of a grammatical construction (which may be called the GOVERNOR) is said to affect the inflectional form of another member (the GOVERNED element). An examination of the literature on the subject, mostly in textbooks, reveals both a broader and a narrower interpretation of this concept.

A clear exponent of the broader conception was Bloomfield, whose famous textbook exemplifies government not only with examples of Latin verbs calling for different cases in their objects (part A of Table I) and French main clauses effecting different moods in subordinated verbs (part B), but also with instances of case in English pronouns (part C). It is, in fact, with these latter examples that he begins his discussion. The A and B examples differ from those in C in that they involve essentially parallel general functions such as Object which are expressed with different cases or moods in correlation with a classification of the governing words. In the English examples, on the other hand, the different cases are simply correlated with different functions, like Subject and Object, and it is not at all clear that it is the verb or preposition that actually GOVERNS the nominal.[1] Certainly an alternative view is that the function itself determines the case in the latter examples, while one must speak of governors of different types in the A and B examples.

One exponent of such an alternative is Charles Hockett, who in 1958 exemplified government with some Latin examples similar to Bloomfield's, and further gave examples of Latin prepositions governing the cases of their "objects". Somewhat later, the British linguist Frank Palmer expressed a similar view.. His textbook contains the following statements:

> In languages such as English and French it is doubtful whether the concept of government can be usefully applied...... There is little value in talking about verbs governing their objects in the accusative if this is the ONLY case in which they govern nouns..., since the choice does not depend on the verb, but the functions of the pronoun in the sentence. (1971:101)

Two other prominent American authors of Neo-Bloomfieldian textbooks, on the other hand, remained closer to Bloomfield in their conceptions, but neither, in the opinion of this writer, treated government nearly as well as Hockett or Palmer. Gleason

TABLE I. Bloomfield's Examples of Grammatical Government (1933:192-93)

A: LATIN		
videt bovem	HE SEES THE OX	ACCUSATIVE
nocet bovī	HE HARMS THE OX	DATIVE
ūtitur bove	HE USES THE OX	ABLATIVE
meminit bovis	HE REMEMBERS THE OX	GENITIVE
B: FRENCH		
je pense qu'il vient [žə pa^{n}s k i vjɛ^{n}]	I THINK HE IS COMING	INDICATIVE
je ne pense qu'il vienne [žə n pa^{n}s k i vjɛn]	I DON'T THINK HE IS COMING	SUBJUNCTIVE
C: ENGLISH		
I know	*ACTOR*	NOMINATIVE
watch me	*GOAL*	ACCUSATIVE
beside me	*AXIS*	ACCUSATIVE

1961, for example, treated government simultaneously with case, though he did recognize that government was a phenomenon that car involve matters other than case. He gave, however, a very broad definition, saying that government is something that occurs when "certain inflectional forms are used to signal the place of the word in a construction" (1961:159). This kind of definition seems to come from the same inspiration as Bloomfield's discussion. It is broad enough to encompass all of Bloomfield's examples, and offers no hint of the distinctions suggested by Hockett and Palmer. In fact, none of Gleason's examples provides a clear illustration of government in the narrower sense suggested by the latter two.

Certainly no better is the discussion in Hall 1964. In particular, this treatment associates government exclusively with case, as indicated by the following:

> In English the category of case remains and HENCE government can be said to exist only with regard to personal and relative pronouns. (1964:201--emphasis DGL).

In comparison to the views of Hockett and Palmer, this idea is both narrower (in not extending beyond case) and broader (in that it is applied to various uses of case which the others would not treat as government). In passing, Hall does, however, cite some French and English examples which seem to suggest non-case instances of government, but he never explicitly says they do involve government, and his flat statement a few pages earlier that "Government involves the use of a particular case form" (1964:201), certainly implies he would not consider them such. These examples are presented in Table II.

In more recent years, a couple of valuable dictionaries of linguistic terminology have been prepared by British authors: Crystal 1991 and Trask 1993. The relevant definitions of government from these works are as follows:

TABLE II. HALL'S POSSIBLE EXAMPLES OF NON-CASE GOVERNMENT (1964:210)

A: FRENCH

sans parler	WITHOUT SPEAKING	INFINITIVE
en parlant	WHILE SPEAKING	PRESENT PARTICIPLE

B: ENGLISH

to work	INFINITIVE
while working	PRESENT PARTICIPLE
without working	

> A term used in GRAMMATICAL analysis to refer to a kind of SYNTACTIC linkage whereby one WORD (or word CLASS) requires a specific MORPHOLOGICAL FORM of another word (or class). (Crystal 1991:155-56)

> Traditionally, any instance of a dependency in which the mere presence of one element (the governor) imposes some requirement upon the form assumed by a second element which is grammatically linked with it (the governed category). (Trask 1993:120)

In these definitions (and in their examples not cited here) both these authors appear to favor the more restricted viewpoint of Hockett and Palmer rather than the **broader** conception of Bloomfield. Crystal, in fact, goes on to say that case government is "not readily applicable to a language like English" (1991:156).

The view adopted here agrees with Hockett, Palmer, and these two linguistic lexicographers in favoring the more limited view of government. The extended sense is probably a carryover from traditional Latin-based grammars. Despite the fact that Bloomfield and his immediate followers were vehement in their rejection of some of the Latin-based absurdities seen in many earlier treatments of English and other modern languages, they accepted this one uncritically. Still in all, English and other modern languages do contain many examples like those cited in part C of Table I. If we follow Hockett, Palmer, Crystal, and Trask in claiming that they do not exemplify government, it is legitimate to ask what phenomenon they do exemplify. To this writer's knowledge, no special term has ever been suggested for situations in which an inflectional form like English case simply depends on a functional role rather than being specified by a governing co-constituent. This lack of a special term is probably part of the reason why some have continued to call it government. The term DETERMINATION is here suggested for examples like these, as opposed to true GOVERNMENT as seen in Bloomfield's other examples. Crucial for the latter cases is the existence of more than one inflectional possibility (of case, mood, or whatever) for the same function, controled by a specific classification applicable to the governing co-constituents. In determination, function alone effects the selection of a particular inflectional category, and there is no need to refer to the classification of any co-constituent to complete the specification.

On this foundation, this paper examines the treatment of determination and government in a stratificational model of syntax and morphology.

1. *Specifying Inflectional Categories.* In general, it seems reasonable to see descriptions of inflectional morphology as operating with basic information about two general sorts of lexemes in a language: base lexemes and inflectional lexemes. Formational morphology (traditionally called "derivation") can safely be ignored as a side issue in the present exposition. Inflectional lexemes are specified by the lexotactics (or grammatical syntax) of a language in a total of three ways. Sometimes, such a lexeme may directly realize a semological category of the language. This is typically found, for instance, for inflectional number and tense, and can simply be termed DIRECT REALIZATION. Secondly, it may be specified by determination as already explained, as when a function such as Object in a clause or Axis in an adpositional phrase determines the *ACCUSATIVE* or any particular case. Finally, inflectional lexemes may be specified via government, in which the classification of the associated governor determines the precise case or other category to be specified for a given syntactic function.

Although government and determination are perhaps most often associated with case, while the initial examples of direct realization mentioned above have involved non-case categories, the material in Table III shows that both case and non-case examples can be found for all three kinds of inflectional specification. In the examples of direct realization given, the sememes being realized are shown in boxes. Direct realization is by definition an interstratal phenomenon, while determination and government are both intrastratal, since the specification involved is entirely within the lexology.

2. *Stratificational Formalization.* The next matter to be considered is how the kinds of category specification being discussed fit into a stratificational relational network. The answer for both direct realization and determination is quite straightforward, but the matter is more complex for government, since there are several alternatives worth considering.

An example of the formalization for direct realization is presented in Figure 1. The sememe labeled *POSSESSIVE* there is quite simply realized as a specification for the *GENITIVE* case, as in such Latin examples as *liber Petrī* PETER'S BOOK or *ira Junōnis* JUNO'S ANGER.

Figure 2 shows an equally straightforward specification involving determination. The English *ACCUSATIVE* is shown to be automatically supplied by the lexotactics for a nominal in the role of Axis in a prepositional phrase.

In order to allow comparison of the alternatives available for treating government, it is desirable to consider a somewhat more complex set of data. Based on some analyses by Sullivan,

TABLE III. Specification of Case and Other Inflectional Lexemes.

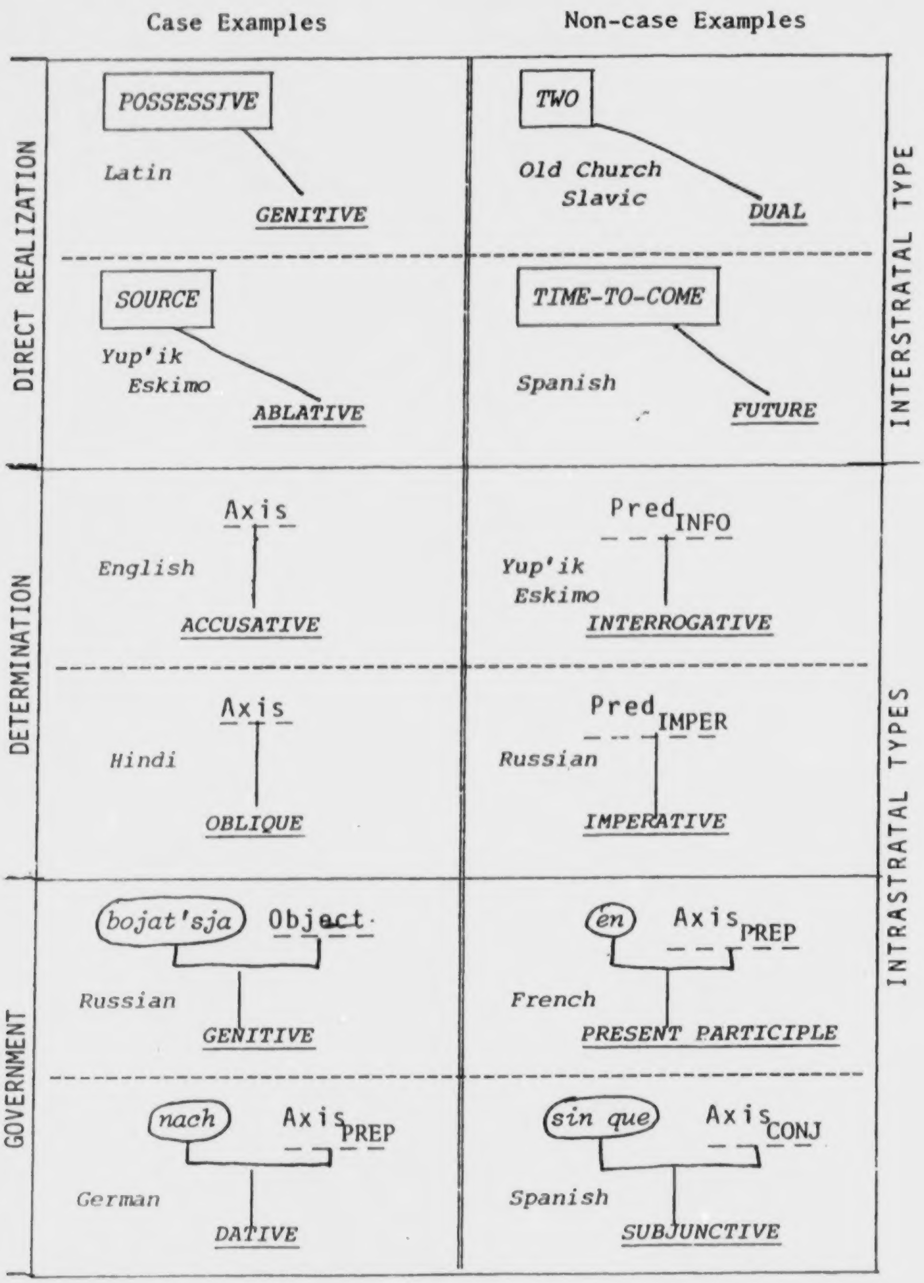
Case Examples
Non-case Examples
DIRECT REALIZATION
DETERMINATION
GOVERNMENT
INTERSTRATAL TYPE
INTRASTRATAL TYPES
POSSESSIVE
Latin
GENITIVE
TWO
Old Church Slavic
DUAL
SOURCE
Yup'ik Eskimo
ABLATIVE
TIME-TO-COME
Spanish
FUTURE
Axis
English
ACCUSATIVE
Pred INFO
Yup'ik Eskimo
INTERROGATIVE
Axis
Hindi
OBLIQUE
Pred IMPER
Russian
IMPERATIVE
bojat'sja
Object
Russian
GENITIVE
en
Axis PREP
French
PRESENT PARTICIPLE
nach
Axis PREP
German
DATIVE
sin que
Axis CONJ
Spanish
SUBJUNCTIVE

Table IV presents some Russian data about the use of prepositions expressing simple locus in combination with different cases: those expressing the meanings *INTERIOR* and *SURFACE* are used with

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Figure 1. Direct Realization for the Genitive in Latin.

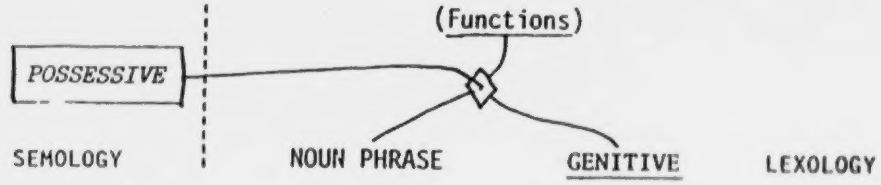

(Functions)
POSSESSIVE
SEMOLOGY
NOUN PHRASE
GENITIVE
LEXOLOGY

Figure 2. Determination for the Accusative with Axes in English.

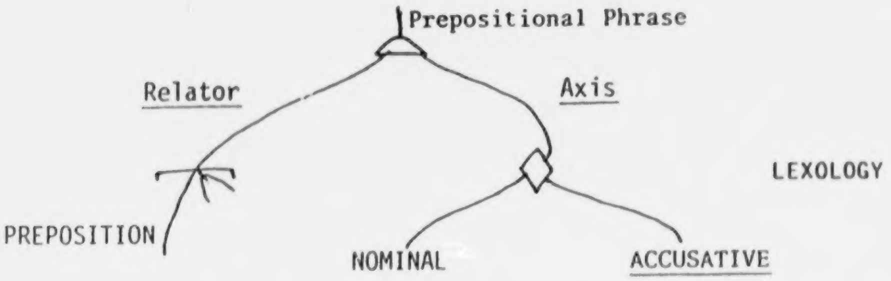

Prepositional Phrase
Relator
Axis
LEXOLOGY
PREPOSITION
NOMINAL
ACCUSATIVE

Table IV.. Some Russian Locus Expressions following Sullivan (1985, 1986).

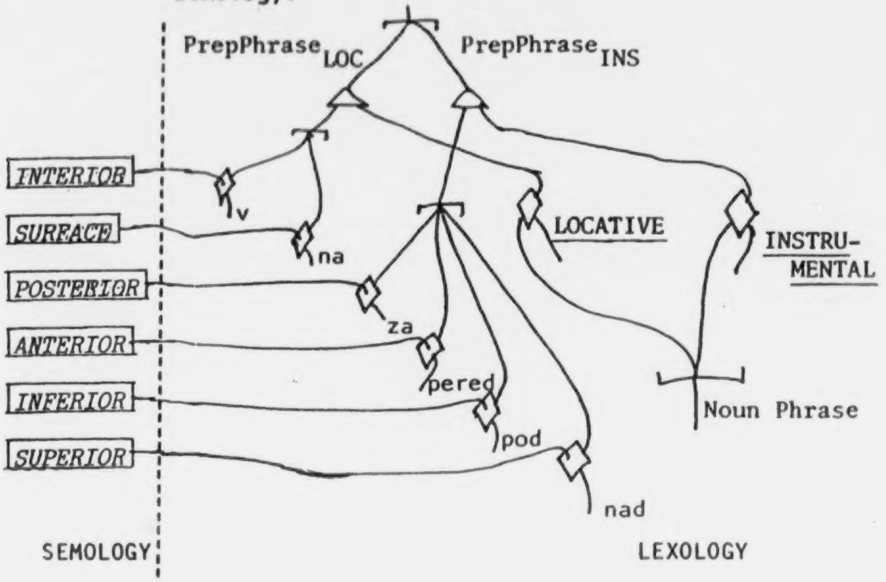
Example	Gloss	Case	Sememic Analysis
v ètom	IN THIS	LOCATIVE	*LOCUS* & *INTERIOR*
na ètom	ON THIS	LOCATIVE	*LOCUS* & *SURFACE*
za ètim	BEHIND THIS	INSTRUMENTAL	*LOCUS* & *POSTERIOR*
pered ètim	IN FRONT OF THIS	INSTRUMENTAL	*LOCUS* & *ANTERIOR*
pod ètim	UNDER THIS	INSTRUMENTAL	*LOCUS* & *INFERIOR*
nad ètim	ABOVE THIS	INSTRUMENTAL	*LOCUS* & *SUPERIOR*

the *LOCATIVE*, while the other ones are used with the *INSTRUMENTAL*.

One way of treating this was suggested in Lockwood 1972. It simply sets up two different prepositional phrase constructions, one of which begins with prepositions of one class and specifies the *LOCATIVE*, while the other begins with prepositions of the other class and specifies the *INSTRUMENTAL*. This CONTEXT-FREE approach is applied to the data in Figure 3.

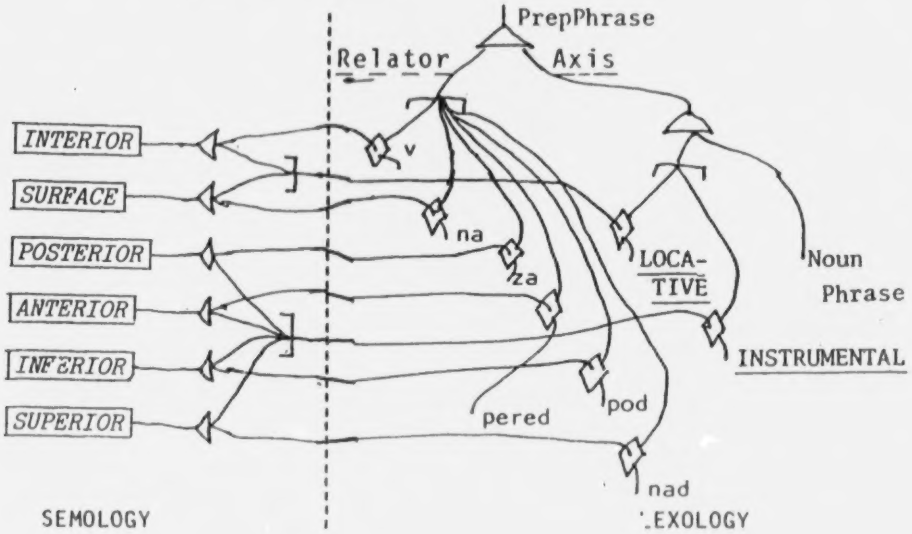
A different possibility allows the use of a single prepositional phrase structure, but treats each locational meaning as being realized by a combination of a preposition plus the appropriate case. These relations are shown by extra structure in the semology. This approach, using COMPOSITE REALIZATION is illus-

FIGURE 3. Account of Locus Expressions with a Context-Free Lexology.


PrepPhrase$_{LOC}$
PrepPhrase$_{INS}$
INTERIOR
SURFACE
POSTERIOR
ANTERIOR
INFERIOR
SUPERIOR
v
na
za
pered
pod
nad
LOCATIVE
INSTRUMENTAL
Noun Phrase
SEMOLOGY
LEXOLOGY

trated for the data under consideration in Figure 4. An advantage of this approach over the context-free one is that it does not require the repetition of the general structure of the prepositional phrase. On the other hand, the composite realization approach requires a separate indication of the case for each preposition involved.

FIGURE 4. Account of Locus Expressions with Composite Realization of Sememes.


PrepPhrase
Relator
Axis
INTERIOR
SURFACE
POSTERIOR
ANTERIOR
INFERIOR
SUPERIOR
v
na
za
pered
pod
nad
LOCATIVE
INSTRUMENTAL
Noun Phrase
SEMOLOGY
LEXOLOGY

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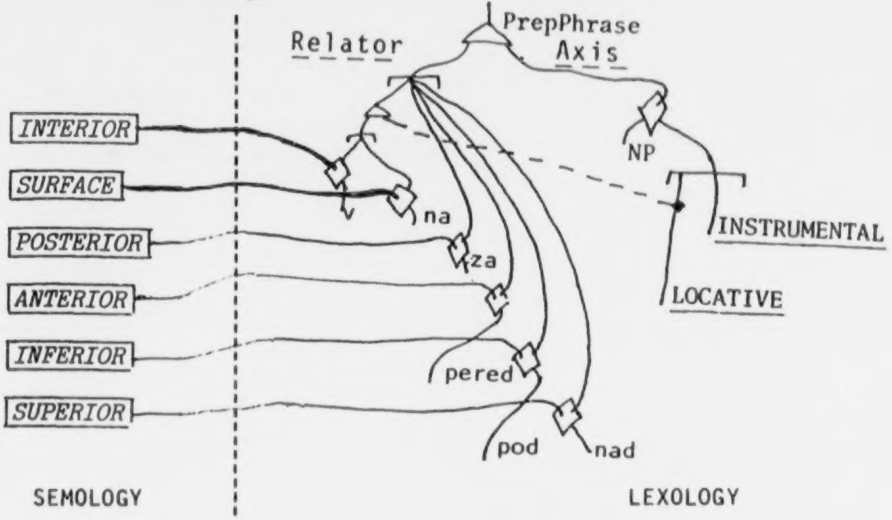
Still another approach uses a CONTEXT-SENSITIVE lexology with a single prepositional phrase structure and subclassification of prepositions in the lexotactics conditioning the alternative specifications for case. This is illustrated in Figure 5. The intuition that this latter approach involves less repetition than either of the others is confirmed by simplicity counts, although its advantage over the context-free approach is minimal for this material.[2]

FIGURE 5. Account of Locus Expressions with a Context-sensitive Lexology.

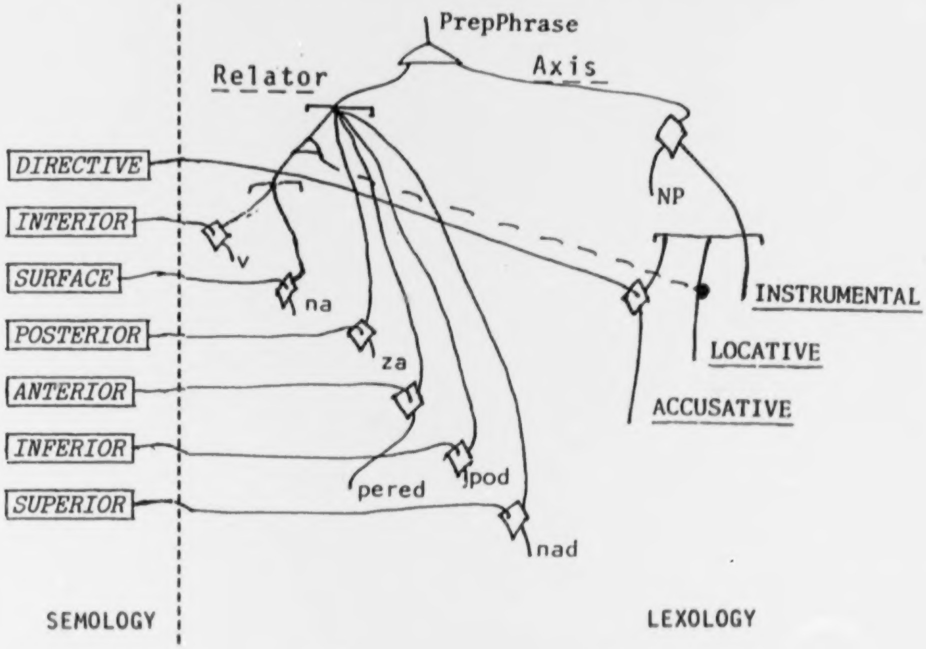


Another advantage of the latter solution is that it shows the difference between government and both determination and direct realization more clearly than either of the alternatives. In the solution of Figure 3, government is treated as a number of independent instances of determination. In Figure 4, on the other hand, government is treated as a kind of direct realization. But Figure 5 shows a distinct way of treating government parallel to the differences highlighed in Figure 1.

3. *Interaction of Government and Direct Realization.* The separate treatment of the three kinds of inflectional specification discussed here does not mean that no interaction between the phenomena is possible. The treatment in Figure 6 gives one example of such interaction, based on further information from Sullivan 1985 and 1986. This expands the account in Figure 5 to include what may be termed DIRECTIVE LOCATIVES. They specify motion toward a place. In Russian, four of the six prepositions shown in Table IV--all except *pered* IN FRONT OF and *nad* ABOVE--show a directive use with the *ACCUSATIVE* in contrast to the simple locus indicated with another case. Similar phenomena are found in various other Slavic and Indo-European more generally.

The account in Figure 6 has only a minor addition to what

FIGURE 6. Broader Account of Locus Expressions Combining Direct Realization and Government to Specify Case.



was shown in Figure 5: when the sememe ^{S}/Directive/ is signaled from the semology, *ACCUSATIVE* is specified as a matter of direct realization, and this takes precedence over either of the other cases, which are specified by government as before.[3] The semotactics would prevent the ungrammatical use of *pered* or *nad* with the *ACCUSATIVE* by simply disallowing the combination of the sememe ^{S}/DIRECTIVE/ with either ^{S}/ANTERIOR/ or ^{S}/POSTERIOR/. (See Sullivan 1986 for details.)

4. *Conclusion*. In summary, this paper suggests that the concept of government offered by Bloomfield and some of his successors is overly broad, having been unduly influenced by traditional Latin-based grammars. This concept is more appropriatedly confined, it is claimed, to those situations where the selection of a governing co-constituent from a specific class requires a particular inflection in the governed word, along the lines suggested by Hockett and Palmer. Also, the term DETERMINATION is suggested for examples now excluded from government. Further, the paper has presented a relational-network account in the tradition of stratificational linguistics which distinguishes government and determination from one another as well as from direct realization.

Along the way, the paper also exemplifies all three kinds of inflectional specification with examples both from the realm of case and from other grammatical categories. While this indicates disagreement with those like Hall, who suggest that government be

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confined to case, it is understandable that case would be used to introduce a discussion of grammatical government, since it is probably the most widespread and prototypical example of the phenomenon.[4]

NOTES

[1] Bloomfield 1933 does not directly define government. Its section on the subject begins, however, with the sentence "In other cases the subsidiary taxeme of selection has to do with the syntactic position of the form" (1933:192). This has been taken as the basis for a definition by both Hamp (1957:30) and Pei (1966:107). Bloomfield 1914, on the other hand, contains a more traditional treatment of the subject (182-86), defining it specifically as "the process by which a word has a different form according to its relation to other words in the sentence" (1914: 184).

[2] The simplicity counts (NODES + EXTRA CONNECTIONS = TOTAL) are as follows: Context-free (Figure 3) -- 14 + 2 = 16; Composite realization (Figure 4) -- 20 + 6 = 26; Context-sensitive (Figure 5) -- 13 + 3 = 16. This makes Figure 5 minimally simpler than Figure 3 by virtue of having fewer nodes.

[3] In a sense, it might be claimed that both Figure 5 and Figure 6 include determination also, since the "elsewhere" selection of *INSTRUMENTAL* is not directly conditioned. On balance, this claim seems unjustified, however, because the choice of *LOCATIVE versus INSTRUMENTAL* is still conditioned by tactic classification. Considerations of descriptive economy, however, make it undesirable to posit two explicit conditions where the notion of precedence, as represented by the ORDERED OR node, allows the use of just one.

[4] The notion of government can reasonably be extended to cover not only inflectional selections but selections within word-classes with parallel functions and conditions. An example would be the use of adpositions in a mannner functionally similar to case inflections. It remains desirable, however, to make more of a terminological distinction between morphology and syntax in general than has often been done. For example, the use of "case" for abstract semantic/functional categories, as set forth in Fillmore 1968 was a regrettable error (despite the great value of many ideas in that paper as a whole).

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THE GRAMMAR AND DISCOURSE OF RELATIVE CLAUSES

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This paper discusses how the grammar of relative clauses in a given language affects the cognitive processes of its speakers and their functions in discourse, illustrating with data from Korean, Japanese, and English. Korean and Japanese are both strongly verb-final languages, with the basic word order of SOV. In a noun phrase construction, modifiers like a determiner, adjective, and relative clause precede the head noun. Thus, the information in the relative clause is presented before the identification of the head, while in postnominal relativization such as in English it is the head noun (along with a determiner and adjective) that comes first. This structural difference in the position of the relative clause influences the functions of relative clauses in the context of discourse.

After redefining the relative clause crosslinguistically and specifically for Korean and Japanese in Section 1, the paper examines in Section 2 grammatical roles of the head NP, and their interaction with the basic word order of the clause and information flow in discourse. Section 3 discusses statistical data on grammatical roles of the NP in relative clauses, suggesting a new interpretation of the high end of the NP accessibility hierarchy.[1]

1. Toward a Crosslinguistic Definition of the Relative Clause

A number of recent studies have presented statistical data on relative clauses, e.g. Fox (1987) and Fox and Thompson (1990) from English conversational data, Collier-Sanuki (1993) from Japanese, Ewing (1991) from Indonesian, and Kim and Shin (1994) from Korean. While quantitative studies are invaluable for many purposes, especially for a study on discourse functions of RCs, they need to be combined with good qualitative analyses. One fundamental problem for any statistical study is to secure comparable data. What kinds of clauses are counted as an RC? Even for an English RC, one needs to make it clear whether a headless RC or reduced RC is included. The picture becomes muddier when it comes to the case of some language in which there is no consensus on what counts as an RC, as in the case of Japanese and Korean. Therefore, a clear definition of the RC--both universal and language-specific--is necessary.

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[1] This paper is thus more statistically oriented than my earlier studies on relative clauses. See Hwang (1990) for a comparison between English and Korean RCs in syntactic forms and discourse functions, and Hwang (1994) for the functions of relative and adverbial clauses in head-initial and head-final langaugcs. I make no distinction between restrictive and nonrestrictive RCs in all three studies, as the distinction can only be made on a semantic ground in many languages. Other studies that provide a statistical comparison also include both types. I wish to thank Marlin Leaders for his comments on the paper.

Crystal (1980:302) defines relative (relativisation) as "a term used in *grammatical description* to characterise *pronouns* which may be used to introduce a *postmodifying clause* within a *noun phrase*, and by extension to the clause as a whole." Palmatier's (1972:145) definition is: "a sentence that is embedded to the right of a noun phrase dominated by another noun phrase." In both, the definition is simply based on English, without accounting for varying structures from different languages. Comrie (1989) and Keenan (1985) show that there are at least four strategies in RC formation crosslinguistically: gapping, relative pronoun, pronoun retention, and non-reduction. In addition, there are languages with internal/headless RCs. What are, then, the essential, nonnegotiable, criteria for the relative clause? Sometimes a formal syntactic structure may have to be supplemented by semantic and pragmatic features.

The single most crucial criterion for the (restrictive) RC is that the clause is embedded in an NP, modifying it. Thus it differs from other subordinated clauses--an adverbial clause that modifies a clause, or a complement clause (CC) that functions as an argument of a clause. However, a CC, when it is headed by a noun may be similar to an RC in structure, as in *the fact [that they missed the train]*. Comrie and Horie (1992) show that in English the CC structure is different syntactically from the RC, since *which* may not be used as a complementizer. From the following three related types, they point out that English groups (1) and (2) together as two types of complement clauses, (1) with a verbal head and (2) with a nominal head. They call this "the English type, treating complementation as a unified phenomenon."

(1) The teacher knows [that(/*which) the student bought the book].
(2) the declaration/knowledge/fact [that(/*which) the student bought the book]
(3) the book [that/which the student bought]

They argue, following Matsumoto (1988), that Japanese groups (2) and (3) together, i.e. the CC with a nominal head is assimilated to RCs in "the Japanese type, treating adnominal clauses as a unified phenomenon." They further discuss preliminary findings in Khmer, which suggest a third pattern where CCs with a nominal head are distributed between (1) and (3), displaying part of both the English and Japanese types. They call for a greater care in classifying constructions as RCs or CCs, and warn that "there is no guarantee that the cross-linguistic dividing line will exactly or even closely match that of English" and "that such basic notions as relative clause may not be of universal validity, if by 'relative clause' we mean not only a certain interpretation but also a distinct syntactic construction correlating highly with that interpretation" (12-13).

Matsumoto (1990:111) says that, although Japanese RCs are of "gap-type," they "cannot be explained solely in terms of a reference-binding relationship between the head noun and a syntactic gap in the RC," and that their interpretation heavily depends on context including semantic frame and pragmatic information like world view and Gricean maxims. She claims that Japanese clausal noun-modifying clauses form one construction syntactically, called adnominal clauses, but with three subtypes, "according to which constituent plays the role of host in the construal of the construction" (1989:229).

Korean adnominal clauses (traditionally called "Kwanhyengcel") similarly divide into subtypes. Thus, beyond the prototypical RCs in which the coreferential noun is gapped in the RC, the subtype of RC includes gapless examples like (4), where Mod=Modifying ending:

(4) [meli-ka cohaci-nun] chayk
head -Nom get.better-Mod book
'the book [(by reading which) (one's) head gets better]'

The clause and the head noun in (4) have the relationship of consequence-condition (or result-reason), i.e. if you read the book, your head/you will become smarter. The head noun has to be pragmatically compatible to the clause, e.g. the head noun may be medicine, music, or drink, but not a car or room in normal situation. Other possible relationships are concession-concessive, effect-cause, requisite (means)-purpose ('a snack [(in order to eat which) (I) don't have to wash (my) hands]'), etc. (see Matsumoto for details). This subtype, which she calls "Clause host type," is the equivalent to relative clauses in the crosslinguistic sense in that the modifying clause hosts the head noun, i.e. the head participates in a frame evoked by the modifying clause predicate.

The second subtype, "Noun host type," is the appositive type, in which what is described in the modifying clause is a complement of what is denoted by the head noun. The third subtype, "Clause and noun host type," is when both the clause and the head host reciprocally, as in (5):

(5) [koki kwup-nun] naymsay
meat grill-Mod smell
'a smell [(of) grilling meat]', i.e. a smell [(which results when someone) grills meat]

Those similar to (5) may have a relational noun like 'result' as the head, encoding logical relations like cause-effect, e.g. '(As) a result [(of) having overeaten yesterday], (I) cannot eat anything today'. Other examples are: 'the change [(from) buying books]', 'the wound/scar [(from being) cut with a sword]'.[2]

---

[2] Yoon (1993) describes gapless RCs in Korean, but all of his examples are of this third type, which are not considered to be RCs here.

Matsumoto (1989:233) presents examples from English that are "Japanese-style noun modification," which have some degree of acceptability:

(6) This is the car [where you feel energetic].
(7) a TV program [where you get depressed]
(8) Here is a snack [that you don't have to wash your hands].

Attributive adjectives are RCs in Korean, from which the subject is gapped (Srel).[3] While there are many examples of RCs which consist of a single adjective word, the following example with two adjective clauses ('heart is good' and 'pretty') in one RC clearly shows that it is the RC (where *-ko* is a conjunction):

(9) emeni-nun [maum chak.ha-ko eyeppu-n] pun isyen-nunte . .
mother-Top heart be.good-and be.pretty-Mod person was-but
'Mother was a [good and pretty] person, but . . .' (Lit. mother was a person [whose heart was good and who was pretty])

Temporal clauses in Korean (those with the meaning such as 'when' and 'while') are RCs in form, in which the generic word such as *ttay* 'time' and *tongan* 'duration' are head nouns.

(10) [hakkyo-lo ka-l] ttay-pota-nun [o-l] ttay-ka . . .
school-to go-Mod time-than-Top come-Mod time-Nom
'when (at the time at which) they come from school than when they go . . '

---

[3] Neither Matsumoto nor Collier-Sanuki make any mention of adjectives being RCs in Japanese, perhaps because it is less noticeable since Japanese RCs do not have modifying endings as in Korean. Collier-Sanuki, however, illustrates the following as the RC:

naka -demo [ichiban ninso no warui] no ga, . . .
among even No.1 looks Nom bad one Nom
'Among them the one [who looked the most vicious] . . .' (Lit. [whose looks were the worst])

In Chinantec languages (postnominal with VSO basic order), "all attributive modifiers of nouns . . . are best treated as relative clauses" (Merrifield and Anderson 1994:484). In English, of course, adjectives and RCs in the NP are placed in different positions and are different in form: *a pretty person [whose heart is good].* This pattern in English makes it difficult to do a comparative study with Korean. Kim and Shin (1994:482fn.) apparently treat adjectives as separate from RCs, according to "conventional wisdom, to the effect that if a word has the productive *-n* ending, and is semantically stative, then we treat it as an adjectival phrase." I likewise didn't include adjectives in my statistics to obtain comparable data, although I believe them to be RCs in form. Notice, however, that Fox (1987:859) points out that Srel are highly stative with descriptive or characterizing function. Some adjectival ideas--especially lengthy ones--in English could be in RCs so that a true comparison of the grammatical construction called RCs in two languages is theoretically unattainable.

In a language like English temporal adverbial clauses are usually used, but Thompson and Longacre (1985) note that it is not uncommon to have them syntactically as RCs, rather than as adverbial clauses in languages. They report that time, locative, and manner clauses, which are substitutable for by a single word, typologically "tend to take the form of, or share properties with, relative clauses" (178). Their illustrations from English are shown in (11)-(13).

(11) We'll go *when* (/at the time at which) Tom gets here.
(12) I'll meet you *where* (/at the place at which) the statue used to be.
(13) She spoke *as* (/in the way in which) he had taught her to.

What, then, is an RC? In Hwang (1990:382), I proposed to define a Korean RC as "all structures with [Clause+Modifying Ending] that precede the Head Noun when the head noun is coreferential with a deleted noun in the modifying clause." In addition to the syntactic structure of embedding, we need to recognize some semantic coreferentiality and pragmatic compatibility between the head and the clause. That is, the head noun may function in the RC as core cases (S, O) or pre-/postpositional phrases like location and time, or at least may be inserted to the modifying clause to be semantically (e.g. as cause) and pragmatically (e.g. world view) compatible to form a Clause host type.

The Korean data for this paper consist of 129 RCs that occur in the eight short written narratives in Hwang (1987). I excluded from the data corpus any modifying clause whose head may not be considered to be coreferential or semantically/pragmatically compatible as the clause host type. This would yield comparable statistics to that of Japanese by Collier-Sanuki (1993) in Section 3. Among those that meet the same criteria for RCs, I excluded adjectives (73 tokens), and temporal or locational clauses that set the setting of the sentence or paragraph, in order that I may have comparable statistics with those in other studies.

2. Information Flow and Grammatical Roles of the Head NP

Fox and Thompson (1990) found different functions of English RCs based on basic word order and the information flow dependent on it. Among the RCs modifying the subject head NP in the main clause in their conversational data, object-relatives (Orel) are most frequent (77% for nonhuman head NP; 50% for human head). These RCs often function to "anchor" the referent in discourse: ***the car** [that she borrowed] had a low tire.* Since O follows SV in English, RCs modifying the O head tend to give new information, which they call the "main-clause grounding" function: *We get **reports** [that go to every department].* In both existential (presentative) and equative clauses, the RC occurs after the main clause as well and tends to carry new information: *there were **two people** there [who were constantly on stage]; it's **the only place** [that carries the book]; The most* *effective writers may be* **those** *[who are intuitively sensitive to the natural constraints of thought and language flow].*

Different functions of the RC in English are often due to the position of the RC relative to the main verb, i.e. the presentation order seems to determine the function of the RC, rather than whether the head functions as S or O in the main clause.

In Korean and Japanese, since the RC occurs before the main clause, there is no main-clause grounding. RCs do the grounding function, whether the head functions as S or O or PN. The distribution of grammatical roles (GR) of the head noun in Korean data is given in Table 1 (where A=transitive subject, S=intransitive subject, O=direct object, Ex=existential subject, and PN=predicate nominal).

Table 1. Distribution of GR for Head NP in Korean

A	S	O	Ex	PN	Other	Total
9 (7%)	33 (26%)	35 (27%)	9 (7%)	16 (12%)	27 (21%)	129

The S and O heads are roughly in 1:1 ratio. This is similar to what Collier-Sanuki (1993:58) found in Japanese: S:O=135:138. However, it contrasts with English which shows about 1:2 ratio: S:O=68:145 in conversational data (Fox and Thompson 307); 53:83 in written data in translations (Collier-Sanuki 63). This contrast between Japanese/Korean (J/K) and English is not surprising given their contrastive basic word order. In English, there are more O heads with the RC giving further information after the main clause is finished.

Thus the preferred position of the RC in English is sentence final, whereas in J/K it is sentence initial. In English we cannot start a sentence with an RC (we should start with the head noun, not with the RC), but in J/K we cannot end one with an RC as the head noun should follow the RC. The preference in both English and J/K is to keep the main clause intact without interruption by the RC. We therefore find extremely long RCs only in a preferred position:

(14) So he married *a grand lady* [who had two daughters of her own, and who, he thought, would be kind and good to his little one].

(15) The most effective writers may be *those* [who are intuitively sensitive to the natural constrains of thought and language flow].

(16) Every day *decisions* are being made by local officials in our communities [that could drastically affect the quality of our lives].

In these English examples, the RC syntactically modifies the last element in the main clause, and conveys more weighty information than that in the main clause. In (14) the RC introduces additional related participants to the head, and in (15) after the semantically bleached main verb *be*, the main assertion occurs in the RC. The RC in (16) is extraposed or right-dislocated, giving new information.

Long RCs at the sentence initial position are illustrated for Korean in (17) and Japanese (in English translation only) in (18).

(17)

						[RC]
[mal-to	epsi	kutaylo	matang	ka-ey	wutwukheni	se.in-nun]
word-even	without	as.such	yard	side-at	idly	stand-Mod

O				**[RC]**
nulk-un	apeci-wa	eli-n	casik-ul,	[hulu-nun]
old-Mod	father-and	young-Mod	son-Acc	flow-Mod

S		**V**
tal-man-i	ywunanhi	elwumanciko.issetta.
moon-only-Nom	unusually	was.stroking

'Only the flowing moonlight was shining brightly on the old father and the young child [who were still standing silently at the edge of the yard].'

(18) 'Because it is **I**, [who had never drawn anything other than pictures of boas from the inside and boas from the outside due to the fact that I was made by the grown-ups to give up on pursuing my painter's career when I was six years old].' (See Collier-Sanuki 1993:61 for Japanese data.)

The Korean sentence in (17) is in OSV order so that the coordinate NP object (old father and young child) is modified by a long RC at the beginning of the sentence. The basic word order of SOV is adjusted, analogous to the English example with the extraposed RC. The long RC has a characterizing function, but provides script-predictable (or accessible) information by inference from context rather than totally new information.

Korean examples follow in (19)-(22) that illustrate different grammatical roles of the head and the (gapped) noun in the relative clause (NPrel). Discourse functions of each RC in the text are indicated as well.

(19) S head-Srel Backreferencing (cohesive) function

	[RC]	**S**	**V**
[wi-eyse	po-ko.it-ten]	wenswungi-tul-un	kitali-ci.an-kho . . .
top-at	see-Prog-Mod	monkey-Pl-Top	wait-Neg-and

'The monkeys [who were watching from the (tree) top] didn't wait, and . .'

(20) O head-Srel Background (characterizing) function

S				**[RC]**
Sim Chengi-nun	[kwusek	cali-ey	kkie	anc-un]
Shim Chung-Top	corner	seat-at	squeeze	sit-Mod

O	**V**
Sim Pongsa-nim-ul	palkyen.hayssupnita.
Shim Bongsa-Acc	found

'Shim Chung found Shim Bongsa [who was sitting in a corner seat].'

(21) Ex head-Srel Background (characterizing) function

		[RC]	**Ex**	**V**
[ssek	na	an-nun]	ai-ka	epta.
boldly	out	sit-Mod	child-Nom	not.exist

'There is no child [who sits out--comes forward--boldly].'

(22) PN head-Orel Background (characterizing) function

S				**[RC]**	**PN**	**V**
I	kes-un	[hanul-i	caki-lul.wihayse	ponay-n]	salam-tul	ita.
this	thing-Top	sky-Nom	self-for	send-Mod	person-Pl	be

'These are the people [who God sent for her].'

Various discourse functions are found for those RCs in Korean texts, along the lines discussed in Hwang (1990).[4] It seems necessary to go beyond just two functional types of characterizing and identifying RCs which Fox and Thompson describe. Nine types of functions are identified, which are grouped into three types according to the status of information, from new to accessible and given. The distribution shows a surprisingly large number of RCs--90 tokens (56%)--that report new information. This group consists of descriptive (9 RCs), background information (76), and minor or flashback event (5). Script-predictable, accessible, information from inference is found in 9 (6%). Given information amounts to 61 tokens (38%), which comprise five groups: given earlier in the text (26), back-referencing to the immediately preceding sentence (6), summarizing an earlier event (6), thematic (5), and identifying information (18). Some RCs function in more than one way, so the total here is more than the total number of RCs. An example for each function is given simply in the English translation only.

Descriptive: 'a gentleman [who is dressed neatly]'

Background information: 'a beautiful daughter of a nobleman [who lives in Seoul]'

Minor event: 'the young man [who was thinking like this and looking at the ground]'

Script-predictable information: After being told how to climb up the tree in an earlier sentence: 'The tiger [who went up the tree] also prayed to God to give him a rope.'

Given earlier in the text: 'The brother and sister went up to the sky, riding a kite tied at the end of the rope.' Five sentences later: 'The brother and sister [who went up to the sky] received God's warm love, and . . .'

Backreferencing: After direct speech in four sentences: '[this word hearing] Shim Chung . . .', i.e. '(Hearing this, Shim Chung . . .)'[5]

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[4] This paper provides further details on discourse functions of RCs in narratives, along with contrastive functions between Korean and English.

[5] See Hwang (1994) for a discussion of the overlap in function between RCs and adverbial clauses in head-final languages.

Summarizing: 'Today is not the first time when he has seen a child [who is going home shedding tears after losing money in the game].'

Thematic: 'the mommy and daddy magpies [who had cast away their precious lives to repay the kindness]'

Identifying: 'the object [that was pulled out of the throat] was a hair pin'

3. Grammatical Roles of the NPrel

Several statistical tables are given in this section to analyze the distributions of grammatical roles of the NPrel along with those of the head NP, as in Fox and Thompson, Collier-Sanuki, and Kim and Shin. All studies have found interesting distributional differences between human and nonhuman. Table 2 gives the distribution for human referents in Korean and Table 3 for nonhuman. The pattern for animal referents (14 RCs) is not shown here as it was similar to that for human, presumably because the animals in the short stories are personified with some even talking.

Table 2. Distribution of GR for Head NP and NPrel for human referents in Korean

Head NP	Arel	Srel	Orel	Other	Total
S	7 (33%)	14 (67%)	0	0	21
A	1 (20%)	4 (80%)	0	0	5
O	2 (13%)	13 (87%)	0	0	15
PN	0	7 (87%)	1 (13%)	0	8
Ex	0	2 (100%)	0	0	2
Other	2 (40%)	3 (60%)	0	0	5
Total	12 (21%)	43 (77%)	1 (2%)	0	56

Table 3. Distribution of GR for Head NP and NPrel for nonhuman referents in Korean

Head NP	Arel	Srel	Orel	Other	Total
S	0	2 (29%)	3 (43%)	2 (29%)	7
A	0	0	0	0	0
O	0	5 (29%)	7 (41%)	5 (29%)	17
PN	0	4 (67%)	1 (17%)	1 (17%)	6
Ex	0	1 (14%)	2 (29%)	4 (57%)	7
Other	0	4 (18%)	3 (14%)	15 (68%)	22
Total	0	16 (27%)	16 (27%)	27 (46%)	59

Among 56 human referents, there is a very high percentage of Srel throughout (77%), with over 20% of Arel. There is only one Orel whose GR in the main clause is PN, and there is none in Other.

Among nonhuman (including abstract noun) referents, there occurs no example of Arel or A head NP.[6] Sixteen RCs (27%) are Orel, as compared with only one in human group, and the numbers for Srel and Orel are the same. There are more O head NPs for nonhuman referents, whose RCs describe a new participant or prop that is introduced in the head.

Table 4. Distribution of GR in all 129 RCs in Korean

Head NP	Arel	Srel	Orel	Other	Total
S	9	28	3	2	42
O	3	20	7	5	35
PN	1	12	2	1	16
Ex	0	3	2	4	9
Other	2	7	3	15	27
Total	15 (12%)	70 (54%)	17 (13%)	27 (21%)	129

When we look at all RCs (animate--human and animal--and inanimate referent head NPs combined), Arel and Orel are similar, although 16 out of 17 Orel come from inanimate referents as seen in Table 2. However, the prevalence of Srel is still unmistakable, with a 4:1 ratio with Orel. Kim and Shin (1994:473) also report preponderance of Srel with any head combination: "in Korean, if anything is relativized, it is most likely that the GR of the relativized item is Subject by a 62% chance."[7]

Regarding the case of Japanese relativization, Collier-Sanuki (1993:63) also notes the prominence of Srel. In fact, "well over 60%" of the total RCs are Srel in Japanese translated written texts, a phenomenon that contrasts with the case of English, which shows a slightly higher percentage of Orel than Srel. Her study of 613 tokens reveals the following pattern: Arel 8%, Srel 64%, Orel 17%, and others 11%. Indonesian, although it is an SVO language with postnominal relativization like English, similarly displays a high frequency of Srel according to the written data studied by Ewing (1991:89): Arel 44 tokens, Srel 114, and Orel 57.[8] As his study is limited to only these three grammatical roles, no percentage from the total is available; however, it is clear that Srel is about twice as frequent as either Orel or Arel. Table 5 shows, in percentage, distributional patterns of GR of NPrel from English (oral from Fox and Thompson, written from Collier-Sanuki), Japanese (written from Collier-Sanuki), Korean (oral and written mixed from Kim and Shin) and Indonesian (written from Ewing, with % divided among A, S, O only), as well as my own statistics on Korean (written).

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[6] Although adjectives are excluded in this study, I note here that 55% (21 tokens) of nonhuman O heads were adjective RCs. Also, out of the total of 69 Srel, 53 (77%) were adjective RCs.

[7] Following Fox and Thompson, their paper discusses combinations of GR of the head noun and the RC that are predominent in Korean data and compares the patterns with those in English conversation data. The 62% they report is for both Srel and Arel (329 tokens out of 467, according to them), and their percentage is apparently miscalculated as it yields 70%, not 62%.

[8] Ewing explains that the relatively high frequency of Arel in his data might be because they are written material, which "tends to package larger amounts of information into single units," and that "A-Relatives tend to do exactly this" (90).

Table 5. Distribution of GR of NPrel in English, Japanese, Korean, and Indonesian (in %)

		Arel	Srel		Orel	Other
English	(oral)	16	32	<	43	9
English	(written)	13	32	<	36	19
Japanese	(written)	8	64	>	17	11
Korean	(written)	12	54	>	13	21
Korean	(mixed)	20	50	>	21	9
Indonesian	(written)	20	53	>	27	-

Except for the English data, Srel are far more frequent than others. This is the pattern that would have been predicted by the NP accessibility hierarchy (Keenan and Comrie 1977), which Fox (1987) describes as "subject primacy hypothesis" reflecting inherent cognitive primacy of the subject. However, Fox challenged this with the "absolutive hypothesis," noting that a language must be able to relativize on S and O, if it has a strategy for relativization at all and that S and O relatives, which are appropriate strategies for introducing referents into the discourse, are far more common than Arel in English conversation. Her arguments are also based on the "preferred argument structure" hypothesis by Du Bois (1987), explaining an ergative-like pattern in discourse of any language.

In formulating the NP accessibility hierarchy, Keenan and Comrie (1977) used a frequency count in written English data and a psychological experiment, revealing that people respond more quickly and accurately to Srel than Orel. Fox's absolutive hypothesis is largely based on English conversational data displaying high frequency of Orel. She (1987:865) notes, however, that RCs with Orel "tended to contain pronominal subjects and often semantically weak verbs (like *have*)." As Fox herself comments, the O of *have* is not a typical example of O in that the clause often expresses static, relational type of information.[9] In fact, in many languages such as Korean, possession is expressed not in transitive but in existential clause, e.g. 'To me a car exists' instead of 'I have a car'. Thus, in such languages, what are counted as Orel in English might count as Srel of existential clause. Here again, we are keenly reminded of the complex factors that are necessarily involved in crosslinguistic statistical studies.

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[9] Ewing (86) also notes that the majority of Orel in his data are low in transitivity, including such verbs as receive, own, know, and need.

The subject primacy that was challenged by Fox may have to be reconsidered, if we recognize the frequency and ease of use of Srel in Japanese and Korean, in which Orel are considerably less frequent and are closely followed in frequency by Arel. Perhaps while acknowledging the absolutive hypotheses in the accessibility hierarchy for relativizability, we should still accept the frequency of Srel in languages, honoring the subject primacy as well. Needless to say, more crosslinguistic evidence is needed.

4. Conclusions

The definition of the RC is reexamined in relation to the complement clause, both in a crosslinguistic, universal sense and in a language-specific sense in Korean and Japanese. An adequate definition of a grammatical construction like the RC requires not only syntactic but also semantic and pragmatic considerations.

Different positions of the RC control the type of information conveyed in the RC in each language, depending on pre- or postnominal position. RCs in Korean and Japanese occur preceding the head noun, enabling them to function cohesively across sentences more readily than English RCs. Often RCs start a sentence in Korean and Japanese--sometimes extremely long ones, showing their cohesive or frame function. English RCs function differently depending on their head NP: the S head type is more "parenthetical" in structure, thus functions to anchor the referent for the main clause that follows. O heads (and Predicate Nominal and Existential Subject) are more frequent and easier to process since they are non-interruptive between S and V. They may report new information which may be the main assertion of the sentence. Discourse functions of RCs in Korean texts were explored statistically. The most common function is to provide new information, which is descriptive or incidental background information.

Grammatical roles of NPrel were studied along the lines of Fox and Thompson with a quantitative analysis. Unlike their results on English conversational data (which showed Orel somewhat higher than Srel), both Japanese and Korean show a strong preference for Srel over Orel, with a ratio of 4:1, not counting adjectives, which would add more Srel. Absolutive hypothesis might have to be revised to show the subject primacy shown in these language data.

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THE COPULA IN TARAHUMARA: PATHS OF GRAMMATICALIZATION

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Introduction.

1.1. Sources of Variety in Forms of the Copula.

There is a rich array of alternant forms in the copula paradigm in Tarahumara, The main copula paradigm is mixed, showing both suppletion and free alternation in the forms of the stem morpheme. Thus in the Present Tense, there are a large number of 'unmotivated' alternations in the stem, e.g. *u, hu, huku, kame, ni-ma, ni-re* as well as *ko, ke* and *ka*. These last three forms have a range of specialized grammatical functions, some of which are copular while others are not. The form ***ke*** also has other functions including that of a negative particle and also of a conjunction. The form ***ko*** plays a role in signalling switch reference and also functions as a prominence marker. As a copula **ko** normally connotes vagueness and is thus often similar to English 'seem'.

Any adequate treatment of the Grammaticalization of the copula in Tarahumara would need to examine the sources of the forms. The predominating stem in the paradigm is ***ni-ma***, a form that is an apparent reflex of a Proto-Uto-Aztecan verb ***ani**: 'to have/do/exist. Another reflex of this ancient intransitive/transitive verb is the suffix *-e-* that occurs internally on derived verbs like *nor-e-ma*: 'to be cloudy' (from ***nori***: 'cloud') and *aw-e-ma*: 'to have antlers' (from ***awa-ra***: 'horn/antler'). This derivation is in fact extremely productive in Tarahumara. We will also see that through the process of semantic bleaching, intransitive verbs indicating position are now being used to express simple location or bare existence, while those expressing location are being used to express existence by itself. Tarahumara has thus exploited a number of sources in recruiting forms that code copular functions.

1.2. Grammatical Directions of the Copula *ka-me*.

In this paper I will not have a great deal more to say about the lexical and grammatical sources of the present variety of forms in the copula pradigm (other than briefly in section 2.), but will rather focus on the result of a specific grammaticalization path that leads away from the copula to other grammatical functions. We will see that the copula *ka/ka-me* has further grammaticalized to become a **nominalizer** and subsequently to function as a **predicator** in stative (and still later in active) clauses, resulting in the introduction of a new finite clause type that functions alongside the older type in indicative and interrogative utterances. Layering of the forms results in the persistence of *kame* simultaneously as a copula, a nominalizer/stativizer, and as a predicator in a new finite clause type. The reanalysis of the copula to nominalizer and then to predicator are iconically mirrored in the phonological changes that accompany it, i.e. both form and function show reduction. Phonological reduction, cliticization and suffixation have facilitated grammaticalization, but the newer forms still partially resemble those of their copular source.

2. Functions of the Copula in Tarahumara.

Some languages have copulas while others do not. Languages that do have copulas typically employ them to code clause internal relations, some of which signal more lexical content than others. Copular functions that are more purely relational (equational), I will refer to here as **primary**. In Tarahumara there are three types of primary copular functions. They occur in clauses that (A) assert an **attributive quality** of an entity; (B) assert the **classification** of an entity as belonging to a category; or (C) assert the **identity** of an entity in its status as a particular.

2.1 Primary Functions.

2.1.1 Asserted Attribution.

As sentences 1a,b. illustrate, Tarahumara may optionally use a copula to express a proposition involving the asserted attribution of an **adjectival** predicate.

1a. *nehé garí o'rú ba*
I house big Junc My house is big.

1b. *nehé garí o'rú **kam** pa*
I house big **Cop** Junc My house is big.

Tarahumara distinguishes **asserted attribution** of a quality, **(Noun + Adj)** from **mentioned attribution (Adj + Noun)** by the order of elements in the nominal expression or clause, respectively; compare 1a. and 2.

2. *nehe o'ru garí **hu** pa*
I big house **Cop** Junc (It's) my big house.

2.1.2. Stative Verbal Predicates (no copula).

Tarahumara has both uninflected adjectival predicates as above, and inflected stative verbal predicates as in sentence 3. These verbs are finite, and hence they occur without a copula.

3a. *'we ba'o-a*
Intns pretty-Pres He is very handsome.

2.1.3. Nominal Predicates.

Sentences 2. and 3. demonstrate that the assertion of classification and identification involve use of copula together with a **nominal** predicate. As was seen above, in asserting attributive states/qualities, the occurrence of a copula is optional in Tarahumara. But for asserting classification and identification Tarahumara appears always to employ a copula. The common element is that in each of these equational types the copula serves to assert a **state**, and is thus stative in its essence.

2.1.3.1 Asserted Classification.

Classification involves the copular linkage of two nominal expressions, the second of which, together with the copula, projects the referent of the first as a member of a class or category.

6. *nehé ono-rá siríame **nima/kame/hu** ba*
I father-Possd cacique **Cop** Junc My father is a chief.

7. *nehé 'nia-ra ono-rá siruame* ***ni-re*** *pa*
I be-Possd father-Possd hunter **Cop**-Prf Junc My father was a hunter.

2.1.3.2. Asserted Identity:
Identification in Tarahumara also involves two nominal expressions. The second, together with the copula, characterizes the first as a definite (particular) referent.

7. *ici-goná nehé kuna-ra* ***hu*** *pa*
demo-deic I husband-Possd **Cop** Junc He is my husband.

8. *hana-goná o'ru-be-ra* ***kame***
demo-deic big-Intns-Nom **Cop** This one is the chief.

9. *mula cókame* ***ko*** *ba*
mule black-Nomz **Cop** Junc It is the black mule.

2.2. Secondary Functions of the Copula.
In addition to the equational functions, there are other common (secondary) functions that are coded by copula-like intransitive verbs in Tarahumara. These involve assertions of **existence, location, position,** and **possession**.

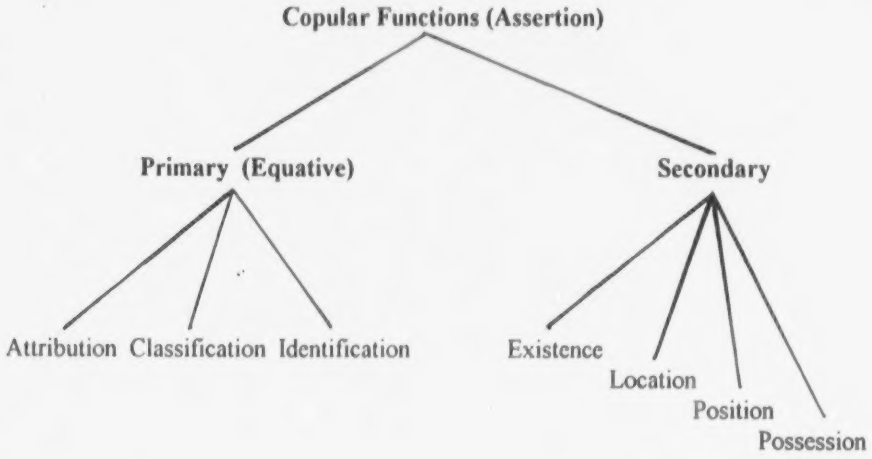

Copular Functions (Assertion)
Primary (Equative)
Secondary
Attribution
Classification
Identification
Existence
Location
Position
Possession

Figure 1

2.2.1. Existentials
The number of alternating forms of the copula that may occur in **positive** existential assertions is quite large, although the form *hu* tends to occur with greater frequency in such expressions than the other alternants.

12. *ehká* ***hu*** *kuci ba pikia kuri pikia tewé - kicao ta* ***hu*** *pa ne*
many **Cop** children Junc three boys three girls - seven child **Cop** Junc
...so I have many children, three girls and three boys - there *are* seven [sic] children in all!

The form used to code the existential copula with **negation,** as in *ke ite /ke (tasi) eta-re*: 'there is/are none/there was/were none', etc., is as expected more restricted than for the existential copula in the positive in Tarahumara, showing little alternation.

10. *sunú ke* ***ité*** *pa*
corn Neg **Cop** Junc There is no corn.

11. *sunú ke (tasi)* ***eta-re*** *ba*
corn Neg (Neg) **Cop**-Prf Junc There was no corn.

2.2.2. Positionals ==> Existentials

Most salient entities in the Tarahumara culture are associated with a favorite (default) positional verb. There are several of these positional verbs in Tarahumara, e.g. ***ahti***: 'sit', ***bo'i***: 'lie', ***'iri'***: 'stand' , ***cuhku***: 'bent down', etc. Some of these positionals also involve motion, e.g. ***eena***: 'walk', ***mawa***: 'fly', ***mani***: 'flow'. As expected in Uto-Aztecan, almost of them are suppletive in the plural/distributive.There is evidence that these forms are being extensively bleached, so that they code essentially bare location or existence. These verbs are often so semantically impoverished that they can now be analyzed as having homophones that are essentially copular in function.

12. *ci kipu rarámuri* ***moci***
how many men **sit/Pl** How many men are there?

13. *ba'wi mi 'tú gomici* ***maní***
water there down stream **flow** There is water down in the creek.

14. *cirugi mi re'pá* ***mawá***
bird there up **fly** There is a bird up in the sky.

2.2.3. Positionals ==> Locationals

Positional verbs are more complex semantically than existentials or locationals in that they are more explicit. Positionals/motionals with lexical content have become grammaticalized in Tarahumara to function as copulas in locational expressions.

14'. *cirugi mi re'pá* ***mawá***
bird there up **fly** The bird is up in the sky.

15. *mi* ***bo'í*** *pa*
there **lie** Junc He's over there.

16. *mi pahcá gari-riri* ***mocí*** *pa*
there inside house-Loc **sit/Pl** Junc They are in the house.

17. *towi-ko mi sihko-ci* ***ahtí***
boy Emph there corner-Loc **sit** The boy is over in the corner.

18. *músa-go re'pá mésa-ci* ***cuhkú*** *ba*
cat-Emph up table-Loc **bent over** Junc The cat is on the table.

2.2.4. Themeless Clauses (no copula).

Expressions of natural conditions like the following do not contain a copula in Tarahumara:

19a. *'we u'ku-a ba*
Intns rain-Prf Junc It is rainy/raining.

19b. *'we u'ku-am (kam) pa*
Intns rain-Nomz (Cop) Junc It' is rainy/raining.

20a. *sep rahtá hipigo ba*
Intns hot today Junc It is very hot today.

20b. *sep rahta-am pa hipigo ba*
Intns hot-Nomz Junc today Junc It is very hot today.

2.2.5. Possession.

Often the same expression is used for the notion 'have' as is used for the copula in Tarahumara, underscoring the close semantic similarity of these two types of expression. Two reflexes of the Proto-verb ***ani**: have/be/do may code these relationships, the copula stem ***ni-*** and the suffix ***-e-*** .

21a. *'we nor-e-ma ba*
Intns cloud-**have**-Fut Junc It is very cloudy.

21b. *'we nor-e-am pa*
Intns cloud-**be/have**-Nomz Junc It is very cloudy.

22. *co'mari ke aw-e-am ni-re pa*
deer Neg antler-**be**-Nomz Cop-Prf Junc Deer was not antlered.

23. *rowi-ko a berá aw-é-rema ba ne*
rabbit did indeed antler-**be/have** Junc But rabbit did have antlers.

24. *nehé ana on-e-am pa*
I Pos father-**have**-Nomz Junc I do have a father.

25. *nehe-ko ana ní-ame aka-ka ba*
I-Emph Pos **be/have**-Nomz sandal-Emph Junc I have sandals.

26. *nehe-ko aká ni-am kam pa*
I-Emph footware **be/have**-Nomz Cop Junc I have sandals.

27. *gari* ***ní-game ka ba*** He is the owner of the house/
house **be**-Nomz Cop Junc He owns the house.

28. *gari ici* ***'nía-ra*** *kam pa*
house demo **be**-Possd Cop Junc The house is his.

29. ***harka 'nía-ra*** *ni-re hana ta mucu*
who **be**-Possd Cop-Prf demo little child Whose little child is this?

3. Grammaticalization of the Copula *kame* for non-copula Functions.

So far we have considered primarily examples of grammaticalization involving athe creation of copulas in Tarahumara. Now we shift the discussion to focus on grammaticalization paths in the other direction, namely the recruitment of an extant copula to perform grammatical functions other than those of the copula.

3.1. Copula reanalyzed in Stative Constructions

3.1.1. As Verbal Nominalizer.

Internal evidence suggests that the fused copular form ***kame*** (from older forms **ka**- and -**me**) was reanalyzed as a nominalizing morpheme when suffixed to verbs. Other Nouns show a similar derivational pattern, e.g. the deverbal Adj/Noun *oce-ru-**game***: 'old (man)' is derived from the Verb *oceru-ma*: 'grow' plus ***-kame***.

30. *ne 'nia-ra ono-rá sébari océr-**ame** hu pa*
I be-Possd father-Possd Intns grow-**Nomz** Cop Junc My father is a very old man.

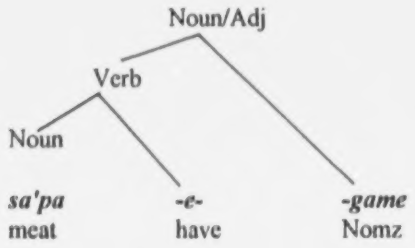
Stative verbs like *o'mona-ma*: 'sad' were productively nominalized as *o'mona-kame*: 'sad being one'. Clauses containing an earlier copula as in *'we o'mona kame*: 'he is very sad' became reanalyzed as *'we o'mona-game*: 'he very sad-being-one'; and subsequently the reduced copula no longer had its clear assertive force or finiteness. It now no longer asserted a state, but rather became simply part of the name of a state. The cliticized/inflectional morpheme functioned as a stativizing participial element.

3.1.2. Statives derived from nominalized Verbs.

In a related derivational pattern the Noun/Adj *sa'p-e-game*: 'fat man' is a construct whose stem is from the noun *sa'pa*: 'meat' + -e- (the reflex of ******ani*: 'to have/be') together with the reduced and suffixed *-kame*. The derivation *sa'p-e-ame: 'fat'* is thus derived from a Noun via a verb plus a phonologically reduced *(kame => -kame=> -game=> -ame=> -am)* .

31. *ici rehoi 'we sa'p-é-**game***
demo man Intns meat-be/have-Nomz That man is a very fat man.
That man is very fat.

31b. *ici rehoi 'we sa'p-é-**ame** hu*
demo man intns meat-have-Nomz Cop That man is very fat.
That man is a very fat man.



sa'pá -- sa'pé-- sa'p-é-kame -- sa'p-é-game -- sa'p-é-ame - sa'p-é-ame kame
meat have meat <====== having meat/be fat ======>

Figure 2

3.1.3. Color Terms with Fused Copula

In color terms like *cokame:* 'black', the copula has lost its function as 'assertion of state/quality' and has essentially fused with the Adjectival stem *co*, meaning 'dark', and has thus become part of the stem. It is normally the default term for the color. But *-kame* also remains occasionally analytical, serving as a derivational suffix meaning 'focal point within the range of the color specified'. All of the four primary color terms in Tarahumara, *cokame*: 'black', *rosakame*: 'white', *sihtakame*: 'red', and *siogame*: 'grue', exhibit this feature for the respective prototypical hue and shade. further at the periphery from the focal point is the contrasting *co-n-**ame***, and even further still from the center is *co-n-**am**-ti* (both of which forms also contain a grammaticalized and reduced copula ***-kame*** as well as an earlier grammaticalized reflex of ***ni***-: 'to have/be' in the ***-n-*** which precedes the reduced ***-kame***).

32. co-**kame**
dark- ***Cop** black

33. co-**n-ame** (*co-ni-kame)
dark-***Cop-*Cop** black

34. co-**n-am**-ti (*co-ni-kame-ti)
dark-***Cop-*Cop**-Atten black-ish-somewhat

3.2. Copula Reanalyzed in Active Constructions

3.2.1. As a Nominalizer of Active Verbs

Active Verbs like *ko'a-ma*: 'eat' came to be nominalized by the cooccurring **-kame** as *ko'a-game* ==> *ko'a-me*: 'food'.

35. *tamói-ko* ***ko'ame*** *'we koa-bo ba hipi ba*
we Emph food intens eat-Fut1Pl Junc today Junc We are eating a lot of food!

For Adjectives (and to some extent the derived Nouns) the assimilation process continued on with the phonological reduction of *-kame* to *-game* and further to *-ame* and *-me* or *-m*.

36. *ici kori sepi* ***koam*** *pa*
demo chile intens **hot** junc This chile pepper is very spicy!

3.3. Reanalysis fo { kame, -kame, -game, -ame, -me, -m } from Nominalizer To Finite Clause Marker.

3.3.1. Stative Clauses.

On the analogy with stative Verbs that could occur in clauses without a copula, the nominalized/adjectivized form ***'we o'mona-me**:* 'very sad/very being one' came to be used with an assertive (Verbal) force, i.e. 'he is very sad', thereby creating a new finite clause pattern. Consistent with layering this new pattern continues alongside the older finite clause pattern *we o'mona kame*: 'he is very sad'.

37a. 'we o'mon-a ba
Intens sad-Pres Junc He is very sad.

37b. 'we o'mon-**am** pa
Intens sad-**Stat/Nomz** Junc He is a/the very sad one.
===>
37b 'we o'mona-**am** pa
Intens sad-**Finite Marker** Junc He is very sad.

As the new finite clause pattern became entrenched, the ambiguity between the resulting predicate adjectival construal (Attribution) for *'we o'mona-me*, i.e. 'he is sad' and the predicate nominal contrual (Classifcation), 'he is a sad man' was resolved by adding a copula (*kame, hu, ni-ma,* etc.) optionally to distinguish the two. This new addition of the free form copula **kame** yielded an even newer pattern for the assertion of either Classification or Identification.

38. *'we o'mona-me* ***kame***:
Intens sad-Nomz **Cop** 'he's a very sad one/ he's the very sad one'.

This pattern has become a very commonly occurring clause type in Tarahumara discourse, but the clause form without the copula *'we o'mona-me*: 'he is very sad' also occurs very frequently to code a finite clause predication. At present the reanalysis has proceeded so far that even *'we o'mona-me kame* can mean both 'he is a very sad being one' (**Classification**), 'he is the sad one' (**Identification**), and 'he is very sad' (**Attribution**), and it is often difficult to know which force is intended.

We can trace the path of development that has led from copula to nominalizer to adjectivizer to finite clause marker in stative clauses as is shown in Stages I-VIII of **Figure 3**.

I. *sep ba'-ó pa* Stative Verb
Intns pretty-Pres
she is very pretty

II. *sepe ba'ó* ***ka*** *ba* Verb + Cop
Intns pretty **Cop** Junc
she is very pretty

III. *sepe ba'ó* ***ka-me*** Verb + **Cop-Stat**
Intns pretty **Cop**-Stat
she is very pretty

IV. *sepe ba'ó* ***kame*** Verb + Cop
Intns pretty **Cop**
she is very pretty

V. *sepe ba'ó****-kame/-game*** Verb-**cop**
Intns pretty-**cop**
she is very pretty

VI. *sepi ba'ó****-ame*** Verb-Nomz
Intns pretty-**Stat**
she is very pretty

VIII. *sepi ba'o-am* ***kame*** Verb + Cop
Intns pretty-**Nomz Cop**
she is very pretty

VIII. *sepi ba'ó****-re-ame hu*** *pa* Verb -Tns/Asp-Nomz + Cop
Intns pretty-**Prf-Nomz Cop** Junc
He was very handsome.

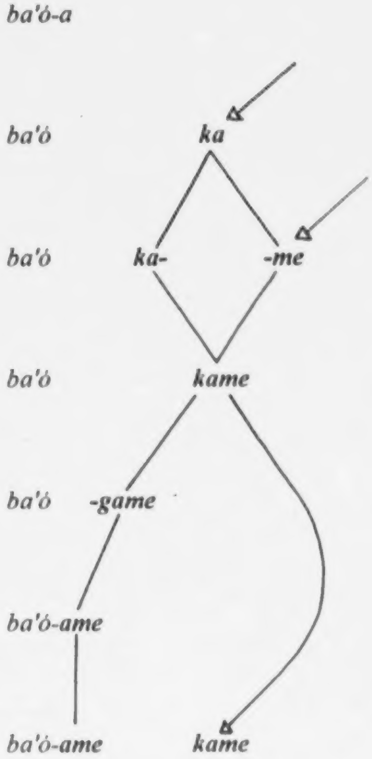


Figure 3

3.3.2. Reanalysis of {kame, -kame, -game, -ame, -me, -m} from Stative Assertive Finite Clause marking to Active Assertive Finite Clause marking.

The new predicating pattern with the participial inflection *-ame* was then extended to active/eventive clauses like:

39. *tamó-ko 'we muni* ***ko'á-gam*** *pa hipi ba!*
we-Emph intens bean **eat-Nomz** Junc now Junc We are eating a lot a of beans!

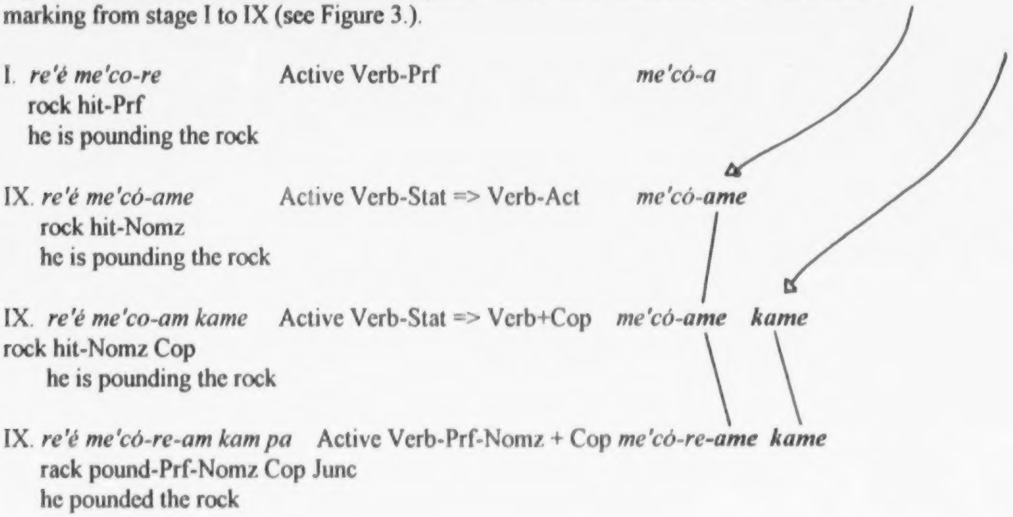
40. *tamói-ko 'we muni ko'á-bo-gam kam pa hipi ba!*
we-Emph intens bean **eat-Fut1Pl-Nomz Cop** We are eating a lot a of beans!

41. *nehé co'mari* ***mi'rí-riru-am*** *pa*
I deer **kill-Pass-Nomz** Junc I killed the deer/They killed my deer.

42. *'we mu ehká co'marí* ***sirúre-am kam*** *pa*
Intns you many deer **hunt-Nomz Cop** — You hunted a lot of deer.

43. *mí bo'ó behté-ame tamci* ***kumé-game***
there across live-Nom me **bother-Nomz** — (The man who) lives across the river was annoying me.

Figure 4. illustrates the extension of the copular derived reanalized forms to active clause marking from stage I to IX (see Figure 3.).



I. *re'é me'co-re* — Active Verb-Prf — *me'có-a*
rock hit-Prf
he is pounding the rock

IX. *re'é me'có-ame* — Active Verb-Stat => Verb-Act — ***me'có-ame***
rock hit-Nomz
he is pounding the rock

IX. *re'é me'co-am kame* — Active Verb-Stat => Verb+Cop — ***me'có-ame kame***
rock hit-Nomz Cop
he is pounding the rock

IX. *re'é me'có-re-am kam pa* — Active Verb-Prf-Nomz + Cop ***me'có-re-ame kame***
rack pound-Prf-Nomz Cop Junc
he pounded the rock

Figure 4

Thus in both active and stative clauses, Tarahumara now has two distinct alternative finite clause types for coding indicative and interrogative assertions; one that is historically finite, containing Verbs that show Tense/Number agreement with the subject and inflect for Aspect, Voice, etc., and the other, newer clause type that contains verbal forms that are inflected with a non-finite stativizing/ nominalizing morpheme *-ame* that in turn derives from the grammaticalized copula *kame*. Both active and stative versions of the new finite clause type have high text frequency, and the pattern is generalized to include *-ame* inflected forms of verbs that exhibit the whole range of verbal inflections in the language, yielding a complete productive paradigm of the newer Verb forms.

ENGLISH WORD ORDER MECHANISMS: INFORMATION MANAGEMENT SYSTEMS

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Word order in English has not only grammatical effects but also cognitive and rhetorical effects. As we interpret sentences grammatically from the subject through the verb to an object or two, we also want to begin with accessible information that introduces the unknown. Therefore sentences ideally proceed from given to new (Firbas 1986). Rhetorically, information flows from an organizing theme that reflects the development of the topic to a newsworthy point at the end of the sentence (Fries, forthcoming). The physical basis of these functional theories about the significance of the ends of the sentence is supported by studies of electric potentials in human brains. In these experiments, the largest waves occurred at the end of sentences, and even larger negative waves occurred when the last word was semantically inappropriate (Caplan 1987: 415-7). Very recently (June, 1995), Tanenhaus et al tested eye movement during ambiguous sentences ("Put the apple on the towel in the box.") They concluded that "in natural contexts, people seek to establish reference with respect to their behavioural goals during the earliest moments of linguistic processing" (1634).

To meet these simultaneous grammatical, cognitive, and rhetorical patterns, English needs a wide variety of mechanisms for arranging word order in an unmarked way. Marked mechanisms for fronting a concept have been often discussed. They include various marked dislocations, nominalizations that turn verbs into nouns that can be subjects, prepositions (especially *as*) used to create marked themes, quantifier float, extraposition of complements, tough movement, and cleft, pseudo-cleft, and Y-movement constructions. The less marked lexical mechanisms may be subconscious. We can classify two broad types. One involves verbs that can systematically rearrange sentence beginnings and endings. Another type uses the space between subject and verb for information that does not merit a prominent position. Here, for example, hedges do not weaken the force of the clause as much as they would elsewhere. Because these unmarked mechanisms make essential but unnoticed contributions to the text, it is worth investigating how English uses them syntactically and semantically to control the beginning, the end, and the middle of sentences.

I. Patterns of Verb Alternations

Since verbs vary in the numbers and types of the participants or arguments and the propositions that they may or must take, they also vary greatly in their patterns of rearrangement. English is a word-order language that seems not to care whether the subject participant is actor, goal, medium, instrument, beneficiary, or range. This freedom permits extensive rearrangement patterns that Beth Levin finds have a semantic basis (1993). She has classified them and compiled an extensive but not exhaustive preliminary catalog of the alternation patterns of groups of verbs. These alternations involve transitivity, prepositional phrases, oblique or dative expressions, passives, *there*-insertion, and location inversions.

Levin has grouped over 3,000 verbs into nearly 200 semantic categories that fit in eight major patterns of alternations with 81 subdivisions (14). Her goal is to relate meaning to patterns of alternations in such a way that the lexicon could include the syntax, ideally systematizing and simplifying learning. Her categories of alternative patterns reveal how the flow of information can be controlled, although she has not yet shown why or when each alternation is needed. From her categories I have selected those that change the order of information at the beginnings and ends of sentences. I list only categories that retain the meaning, reporting the same event, with no change except emphasis, focus, and flow of information. I use Levin's reference numbers, labels, typical verbs, and selected examples, but I have combined some of her categories.

Changing Subjects

Category 1.1 holds verbs whose direct object can become subject of an intransitive verb, with the original subject expressed optionally in a prepositional phrase. First, in the middle alternation (in category 1.1.1, *break, cut*), the medium is an affected object that replaces the agent as subject, and the agent is usually not expressed.

1. *The butcher cuts the meat. The meat cuts easily.*

A large group of verbs (1.1.2.1), often called ergative, uses a causative or inchoative alternation where either the actor causes the medium to change its state or position or the medium just does it. Verbs like *roll* and *bend*--and *break*, again--belong here, but not *cut*. Some of these verbs indicate a change of state (*abate*) or color (*blacken*) or are identical with an adjective (*clear*) whose status the subject takes on. Other verbs in this category have a suffix indicating a change of state, such as *awaken, purify, equalize*, and *accelerate*.

In 1.1.2.2, another group of verbs like *run* has optional animate causers that induce action in others, which are often animals. Further verbs (1.1.2.3) seem more internally controlled, such as those emitting sound, light, or a substance (*ring, shine, bleed*), and those like *lodge* or *suffocate* and *stand* (in space). The substance and its source can alternate, as with verbs of substance emission (1.1.3).

2. *Heat radiates from the sun. The sun radiates heat.*

An agent in category 1.2.6.2 can use an instrument named in a prepositional phrase for its characteristic use, or the instrument can perform as subject without the agent identified, as with *cut* again and *write*. The pattern is Agent-V-(O)-with instrument --> Instrument-V-O.

Another group of intransitive verbs (2.4.2) reverses product and material without a change in transitivity. In this case, the second participant is introduced not as direct object but with a preposition.

3. *That acorn will grow into an oak tree. An oak tree will grow from that acorn.*

In 2.13.5, intransitive verbs of a change of state that can be calibrated take either the entity changed or the calibration as subject:

4. *Meat fell in price. The price of meat fell.*

An extra reversal occurs in 2.13.4. If an attribute and its possessor operate on a transitive verb of psychological action like *amuse*, the attribute and possessor can reverse as subject, or the attribute can be in a prepositional phrase afterwards:

5. *The antics of the clown amused the children. The clown's antics amused the children. The clown amused the children with his antics.*

With verbs like *swarm* and intransitive *clear* (in 2.3.4 and 2.3.5), the subject can be a location or what fills it, including verbs of light, sound or substance emission, the existence of sound, and modes of being that involve motion or are entity-specific. Prepositions at the end of the sentence introduce the dislocated participant:

6. *Bees are swarming in the garden. The garden is swarming with bees.*

'Oblique' subject alternations can omit an agent altogether. Verbs such as *see, dry, fill, buy, profit*, and *break* (in 3) take subjects of time, natural force, price, container, raw material, location, abstract cause, or intermediary instrument.

7. *He established his innocence with the letter. The letter established his innocence. His innocence was established by the letter.*

Passives are perhaps the best known and most common way to reverse subjects and objects around many transitive verbs (5.1). Past participles used as adjectives can cause similar reversals (5.3-5.4):

8. *Glass was strewn in the street. The street was strewn with glass.*
The feathers remained stuffed in the pillow.
The pillow remained stuffed with feathers.

A few intransitive verbs that have become two-part verbs with a preposition particle can also become passive (5.2):

9a. *This bed was slept in by George Washington.*
9b. *I always get talked to by strangers.*

Halliday gave the last example, making the point that prepositions can signal a special status, creating prominence by placing participants either earlier or later than expected (1994:168).

Inversions are common after *there* (6.1), primarily with intransitives and passive transitives besides *be*.

10. *There appeared a ship on the horizon. There developed a problem.*
There was found in this cave an ancient treasure trove.

They imply existence or appearance more than action or a change of state (*cling, decay, emanate, hover, persist, tower*); emission of sound, light, or other substance; spatial configuration; and motions (like *enter, run*, and *roll*) besides perception and some creative concepts. A miscellaneous group ranges from *chatter* to *work*. Prepositional phrases also can change positions. The few transitive verbs that can follow *there* require that the first NP following the verb after *there* be an indefinite; thus this construction is suited very well for introducing newsworthy participants at the end of the sentence. Terms of location in 6.2, such as *nearby*, can substitute for *there* with a list of verbs very similar to the list for 6.1 above.

Changing Objects and Other Sentence Endings

The types of verbs that I have described can affect both ends of the sentence when they reverse subject and object. Other types affect only the final position. Some can delete the direct object, move the dative *to*, act reciprocally, or otherwise rearrange orders of objects.

Specifically, objects of category 1.2 verbs can be omitted when they are reflexive, understood as body parts, or otherwise predictable (as after *eat*). Also, when subject and object are comparable, capable, animate, and acting reciprocally, they may reverse their positions as subject and direct object or combine to make a single subject of an intransitive variant of the verb, as after *marry* or *meet* (1.2.4). Some verbs of contiguous location share this feature.

11. *Italy touches France. Italy and France touch.*

An object can be omitted if an audience can easily deduce it, as *people in general*, *us*, or *one* (1.2.5). This deduction occurs with verbs of advising and psychological actions like *amuse*. Likewise (1.2.6.1), it occurs with objects expressing characteristic properties of agents.

12. *That dog bites (people).*

Cognate objects (7.1) are so often omitted that they might be more appropriately called additions. They may follow innately intransitive verbs of nonverbal expression. Their objects must be something closely related to their meaning and are usually modified, so that the object NP acts as an adverb. Examples include *smile a broad smile, sing an old hymn,* and *live a long happy life*.

13. *Pauline smiled. Pauline smiled her thanks.*

A large group of verbs with animate subjects that broadly enact change of possession take two objects whose order can be reversed without disrupting transitivity. In this dative alternation, the recipient or benefactor can appear either between verb and direct object or at the end of the sentence in a prepositional phrase introduced by *to* or *for*. The 2.1 alternation applies to verbs that mean give, future having, bring/take, send, slide, carry, throw, transfer a message, or use a certain instrument of communication. It extends to the infamous, *Peel me a grape*. Constraints on this alternation have been widely discussed (by such as Givon II:217). It seems to require an animate subject. Some benefactive verbs (2.2) that use it include those that mean *build, create, prepare, perform,* and *get*.

The locative alternation of 2.3.1 occurs with verbs like *spray* and *load* that place something on a surface or in a container.

14. *The farmer loaded apples into the cart. /loaded the cart with apples.*

Although both of these describe the same event, only the second implies filling the cart full. When the implication is important, this variation may change the meaning too much to be included here.

Categories 2.3.2 and 2.3.3 use different prepositions to reverse location and filler. Verbs like *wipe* use *off*, while transitive verbs of clearing use *of*. The construction material and the product may reverse around transitive verbs such as *build* (2.4.1), typically using *of* for the material or *into* for the product.

15. *Martha carved a toy out of a piece of wood.*
Martha carved the piece of wood into a toy.

Intransitive reciprocal verbs of joining or splitting can separate their subjects into subject and object of a preposition (2.5).

16. *The car collided with the bicycle. The car and the bicycle collided.*

Givon distinguishes "light" and "heavy" marking of reciprocals (II:81-9):

17. *Joe and Mary met. They kissed (each other).*

When objects reverse with verbs of fulfilling, like *supply*, the former direct object requires a preposition (such as *with*, 2.6-2.11).

18. *The judge presented a prize to the winner. /presented the winner with a prize.*

Blame also reverses its participants with a different preposition for the one added last, *on* for the responsible party, *for* for the incident (2.10). Verbs of hunting have a similar reversal, often using *in* for the location and *for* for the entity sought (2.11). Both positive and negative verbs of psychological attitudes can reverse the attribute and its possessor (2.13.2, 2.13.3).

19. *I admired (him for) his honesty. I admired the honesty in him.*

In class 7.8, certain nondirectional verbs of motion without an inherent goal can add a location in a prepositional phrase. Examples of these verbs include *run, waltz, push/pull*, and verbs for body-internal motions and emission of sounds.

20. *The clown wobbled (down the hall).*

Levin limited her preliminary investigation to exclude verbs that project sentential complements, although she did recognize that *he said* could be at the beginning, middle, or end of a sentence, as in example 25 below. Her study does not mention separable two-part verbs either. Halliday points to their effectiveness in placing the new information of the particle in an unmarked position at the end of the sentence (xxxi, 207-10).

21a. *They* ***canceled*** *the meeting. They called the meeting off.*

The two-part verb replaces one-word a synonym that requires marked stress on the new information in the middle of the sentence. When the information is old, as evidenced by pronoun reference, and when keeping the two parts together would place that old reference at the end of the sentence, two-part verbs are always separated.

21b. They called off the president's secret meeting.
*They called it off. *They called off it.*

Another type of verbs consists of sets that systematically report actions from different points of view, although they are usually not related etymologically. Verbs of mental action pair a human with the external cause (Halliday, 116-7).

22. *I like it. It pleases me.*

The rich vocabulary of English offers also the unexplored category that includes *buy-sell-cost-pay-charge, lend-borrow, give-receive, learn-teach*, and maybe *read-write.*

II. Rearrangement to Dim Information in the Middle

When sentences begin with a theme that provides a framework for interpreting the sentence and end with a newsworthy point at the end, anything else, such as hedges, must go between them. The position immediately after the theme has the least information value, so it can be called *the pit* (Hartnett, forthcoming). Because it has the lowest information value, it is like the pit stop in an automobile race; stopping there for fuel can be either essential or a costly delay. Although long interruptions between subject and verb cause a turbulence that interferes with ease of reading, items appear there for many reasons: to add information or circumstances of relatively less importance, to protect essential data from scrutiny, to keep modifiers near what they refer to, or to preserve beginning and ending positions for appropriate material. It is a perfect place to hide hedges, concessions, projecting clauses, and other attributions to a source. Omitting this information might be inaccurate and unethical. Subsidiary wording here can provide additional help with the topic, interpersonal relations, and textual coherence. Moreover, the pit regulates tempo as well as emphasis, enabling the ends of sentences to perform their own roles.

The pit is a choice that begins after the complete subject NP. It excludes anything that is so closely tied to the subject or the verb that its placement is already specified. Excluded are postmodifiers constructed as adjectives, prepositional phrases, participial phrases, and restrictive and nonrestrictive clauses.

All the examples here are from a small corpus consisting of the first three sentences of 68 biographies and the 245 sentences on the first page of the main section and the sports section of *The Houston Post* on May 21, 1991, and in two other news articles on oil spills. At some level of delicacy, 13.7% of the biography sentences and 14.6% of the newspaper sentences used the pit. Despite these similar proportions, an earlier study found the Pit position filled in 20% of the sentences in the news reports studied, but in only 7% of the sentences in the human interest stories on the same pages (Hartnett). Examples of hard news are labeled *N*, sports are labeled *S*, and human interest stories are marked *H*. Examples from biographies are identified with the name of their subject and the order of the sentence, either 1, 2, or 3. Possible alternative positions for the bolded pit material are shown with an insertion mark (^).

In this analysis, I classify the contents of the pit in lexicogrammatical categories of (1) conjunctions, projecting clauses, and attributions, (2) modifiers of the verb, and (3) expansions of the subject. Afterwards, I reclassify them according to their impact on the sentence.

Sentence Modifiers: Conjunctions, Projecting Clauses and Other Attributions to a Source

In any position, conjunctive adjuncts such as *however* and *also* appear cohesive with a previous sentence (Halliday 1994:323-30). In the pit, three questions need answering. Exactly what items are joined? Why is the conjunctive adjunct used when it could be assumed? Why it is not first?

23. *Saudi environmental officials said workers rearranged for a third time a configuration of oil booms placed around the plant, which supplies drinking water*

to the kingdom's capital, Riyadh, and parts of the eastern province. ^Booms ***also*** *were moved around Ghazlan power plant, a huge installation south of the desalting facility^. Officials have said that if the desaltification plant is closed....(N)*

The conjunctive adjunct in this example joins comments about the thematic subject, *booms*, to its mention 20 words earlier in the previous sentence. The *also* adds a distinct parallel action that is not meant to be mainlined. The *also* is not first because, as the beginnings of adjacent sentences show, this passage is developed by official statements, not incidental materials or actions of workers.

Another conjunction contrasts two subject themes and their opposite comments.

24. *...the cruiser was recovered a few blocks away. ^The suspect [sic]* ***however,*** *was nowhere to be found^. (N.H.)*

Because the point of the sentence is the contrast, which the *however* labels, the conjunctive adjunct could be first. Without the label, the reader must do the work of recognizing the contrast. The delay, *however*, creates suspense with a dramatic pause, which is appropriate for this human interest story.

Clauses with verbs that project sentential complements (*he said*, for example) can appear at the beginning, middle, or end of the projection. Wording that cites a source can be reduced to expressions such as *according to*. These expressions are valuable for crediting, concessions, hedges, and interpersonal comments. Biographies used them to evaluate projections, protecting them from being questioned.

25. *^Boston,* ***I thought****, did not have enough cultural life for me^.* (Mencken 3)

Modifiers of Verbs

When adverbial material is not placed first, it is more likely to be last to avoid interrupting the sequence after the verb, but it can be in the pit.

26. *^My mother's family,* ***long before I was born,*** *had moved from Demopolis to Cincinnati^ and then to New Orleans^, both desirable cities, I guess, for three marriageable girls.* (Hellman 2)

If this temporal material were made thematic, it would disrupt the actual thematic procession of references to family. Time here is only incidental. Time adjuncts were plentiful in the corpus. They can be read either with or without an intonation stress.

27. *^ He* ***already*** *has ^started ^six times ^this year ^in the Dome^, producing a 3-0 record^ and a 1.76 ERA^.* (S)

Still can appear at any boundary between information units, but tends to appear before the finite.

28. *^It's still fuel^. ^It* ***still*** *has heat potential^.* (N) **It has* ***still*** *heat potential.*

Halliday distinguished mood adjuncts, which relate to tense and polarity, from comment adjuncts (such as *unfortunately*) which express the communicator's attitude or manner of action, but he admits that the boundary is not firm (82-3). The distinction is that mood adjuncts are more closely bound to the verb, although they can appear elsewhere. Their exact placement relates to meaning. On the other hand, comment adjuncts tend to appear at boundaries of units and are much more likely to be at either end of the sentence. For all of these, the placement at the beginning of a clause makes the expression thematic, placement in the middle is neutral, and placement at the end suggests afterthought.

Fries contrasts the use of *perhaps* in various places, including the pit position (1981). His example of an "extremely vulnerable statement" chose the theme position because "the obvious vulnerability of the statement calls for the author to acknowledge that vulnerability in a clear and obvious way" (1983:138). In contrast, in the pit the force of the word is weaker. In the following speculations, a mild modulation is sufficient.

29. *^Had I tried hard enough,^ I* ***probably*** *could ^have landed a permanent job on one of the large Boston papers^, but I was determined to get out of the city.* (Mencken 2)

30. *^Iraqi troops* ***allegedly*** *started the huge slick ^by intentionally dumping oil into the gulf^.* (N)

An additional consideration is that if *allegedly* preceded *Iraqi*, it would cast doubt on the nationality of the troops, but the more doubtful elements are the actor, the action, and the deliberateness.

De-emphasis is not the only reason for Pit placement. Adjuncts of frequency modify the force of the verb, either weakening or strengthening it, but always increasing the time for processing the verbal group. *Often* and *once* are more flexible in positioning than terms with strong polarity that attracts them to the finite. *Never* usually fits in the pit, although *never* and the finite can be thematic in rare cases. *(Never did this occur in the corpus.)*

Mood Adjuncts expressing intensity can be overused and misplaced. Because their meaning and what they modify vary with their position, their placement is not completely free. They therefore are usually edited out of writing.

31. *"^I* ***really*** *don't ^like this bill^."* (N)

32. *^I* ***simply*** *had to ^look back over my shoulder^.* (Carpenter 2)

Modal adjuncts appear with and without commas.

33. *^This,* ***of course,*** *represents ^only one of Louis Pasteur's titles to fame^....* (Pasteur 2)

34. *^The slick* ***apparently*** *was caused ^by a U.S. attack ^on Iraqi tankers off the coast of Kuwait^.* (N)

The pause that the commas represents interrupts the intonation contour and adds emphasis to the subject (Kolln 365). Without commas, these examples would be read without pause, adding time and therefore emphasis on the verb. The adjuncts themselves may get an optional additional stress, further increasing the emphasis on the VP (Kolln 370).

Expanding the Subject

Expressions that are appositive with the subject identify it further. Since the subject and the appositive have the same referent, they could logically be reversed, but a reversal might obscure the thematic progression of the passage. Appositives must have enough value to compensate for increased difficulty in reading sentences with a long interruption between subject and verb. However, the compactness of appositives makes them useful in newspapers, and the depth of information makes them useful at the beginning of a biography. Expansions of the subject protect information from disputation, just as nominalizations and passives obscure details that the writer wants the readers to accept without challenge. If appositives were separate sentences, they would change the focus and invite challenge.

The pit can hold epithets, definitions, proper names, titles, age, size, or a politician's party, home district and stand on an issue.

35. *^Rep. Sylvester Turner,* ***D-Houston and a sponsor of the referendum measure,*** *said he is confident there is time to get the bill approved before the session ends next Monday.* (N)

Appositives allow a Theme that some readers may not recognize. Although most appositives are set off with commas, parentheses and dashes are also used to achieve an effective impact.

36. *^Father* ***(Ernest R. Pike, born in Maine in 1872)*** *was a country doctor in Woodstock, Connecticut, back before there were many paved roads in the area.* (Pike 1)

This appositive adds to a family relationship the name of the subject and information to identify the setting. The sentence ends preparing readers for detail of family ways of dealing with difficulties, methods that became characteristic of the biographee.

More independent than appositives and descriptions are the absolute structures that can occur any place where they do not interrupt a phrase.

37. *^In 1969, early June, ^Ezra Pound–elegant in old age,* ***the voice silenced--****came back to the United States on what was to be his final visit^.* (Pound 1)

This example proves that absolutes are not always hard to read. The structure is ideal for beginning this biography: Theme of time (year, then month) and Subject, description of the Subject, characterization, action, and at last the point, his final visit, which is discussed in the following sentences. Although the absolute expression *the voice silenced* relates to the Subject, Pound, it lacks the grammatical connection that exists for the post-positioned adjective phrase, *elegant in old age*. The grammatical connection is sufficient reason for not reversing these two descriptions, but another reason is that the adjectival expression refers to physical appearance that, in this case, is less important than the status of the outspoken poet's voice. Use of *the* instead of *his* before *voice* marks the condition as more surprising and remote.

The pit can hold a complete sentence that expands on the subject but is not at all related to it grammatically.

38. ^. *His baseball prowess--****he is the Met franchise's all-time leading home run hitter****–earned him megastar status in a city that treats its icons the way pigeons treat statues.* ^ (S,H)

III. Reclassification and Conclusion

We can reclassify items in the pit according to whether they are set off with pauses, commas, or other punctuation. The pauses slow the tempo, increasing emphasis on the preceding subject (see examples 24, 25, 26, 33, 35-38). The pit without pauses adds to the verb, increasing attention there. Thus the pit regulates the tempo and emphasis of the sentence internally in addition to providing a place for certain kinds of information. It is ironic that the pit position for a hedge can both reduce the probability of the predication and also increase the focus on it.

Beyond the nontextual and stylistic reasons for these unmarked variations, exploring them shows how word order reflects the weight of relevant bits of information. Consistent contrasting weakness in this middle position supports the theory of Functional Sentence Perspective concerning the flow of information in English sentences. The pit and verb alternatives encourage writers to accommodate audience needs by placing information where the audience can best use it. The pit provides a default position to subordinate hedges, concessions, explanations, transitions, and attributions. The verb alternatives allow a politician to take credit for growing the economy ergatively instead of merely letting it grow intransitively. The pit and choice of verb alternation pattern free the theme to outline a larger method of development, although that method may require a term that is not yet known. They push the focus to important new information in a place where it gets natural emphasis and can be developed further. Improved viewpoint, focus, and emphasis are part of the reason for these changes and part of why the speaker wants the participants at different places in the sentence. They are why English has mechanisms to allow these rearrangements. These mechanisms help the two ends of a sentence to behave as well as they do.

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STUDY OF THE ARABIC SENTENCE: A TAGMEMIC APPROACH

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The purpose of this paper is to study the concept of the Arabic sentence (as viewed by Arab grammarians) and show that it differs from a clause through one version of the tagmemic theory, where necessary. The absence of a construction called 'clause' in the literature of Arab grammarians is the basis for my argument. Also, modern Arab grammarians have not endeavoured to clarify the sentence, but rather reiterated what their predecessors said, deeming it necessary to establish the proper hierarchy of constituents in Arabic.

The sentence (jumla hereafter), according to Arab grammarians, is a combination of words in a particular linear order, headed by a verb (thus a verbal sentence) or a noun (thus an equational sentence). A verb needs a subject and object (if it is transitive); a subject needs a predicate (noun) to complete its meaning. If the major parts of speech are present (verb, subject, object, predicate) and the constituents form a meaningful unit, then this meaningful unit is a *jumla*. Based on this, the definition of the Arab grammarians for a sentence is parallel to what is called a clause in English. To avoid any confusion, I have opted to use the word *'jumla'* when referring to the Arabic sentence (rather than sentence which may refer to both clause and sentence in Arabic).

Any grouping of the *jumla* via a connector does not affect its existence as a separate meaningful entity; If we use a conjunction to connect two jumlas together, then we will still have two jumlas, not a new larger jumla. Arab grammarians justify this argument by saying that either part of the conjunct jumlas can be independent and meaningful. To illustrate their point of view, let us look at the following example:

> *akala al-awlaadu tacaamahum wa sharibuu al-qahwa (1)*
> 'The boys ate their food and they drank coffee.'

Arab grammarians say that (1) is one sentence not two because the first part *'akala al-awlaadu tacaamahum'* can exist on its own, is grammatical and meaningful. That is, if the underlined construction in example (1) appears independently, it is meaningful and complete (since the verb, subject, object are there and in their proper linear order), thus it is a *jumla*.

But that means that they are taking it out of context to render it grammatical and meaningful. Al-jurjani, one of the leading Arab scholars, sees that for speech *'kalaam'* to be meaningful, the relation of the part to the whole must be established; Furthermore, meaning is established through the relationship of words to each other within a given construction. He goes on to say that one should study a word before it becomes part of a construction and before its semantic role in a sentence, because it would be useless unless it is connected to other words in the construction (Al-jurjani, 1981). Based on this, the underlined jumla in example (1) should not be taken out of context because the construction of the whole unit has changed due to the introduction of a new grammatical element (in this case the conjunction *'wa')*. Arab grammarians describe speech *'kalaam'* as a useful utterance that indicates a meaning and can be understood when the speaker stops at the end of such a construction (Al-ansari, 1979).

With the above definition in mind, let us re-examine example (1)

akala al-awlaadi tacaamahum wa sharibuu al-qahwa

Now, to understand the meaning of this construction, we have to say or read the whole construction and stop at the end or the last word, i.e., *'al-qahwa'*, For example, we do not say:

**akala al-awlaadu tacaamahum wa (2)*
*'The boys ate their food and..'

and if we did, the construction would semantically and grammatically be incomplete.

Ibn Jinni, another renowned Arab linguist calls (2) an utterance '*qawl*'. He distinguishes between *kalaam* 'speech' and *qawl* 'utterance': The former is any independent construction that is meaningful, while the latter is any words that a speaker uses whether its meaning is complete or incomplete. An utterance can be meaningful and complete if, for example, we say *'sah'* (be quiet!). In this case it is a jumla. But it is incomplete if we say: *kaana axuuka*...'your brother was...'. Therefore, every speech is an utterance, but not vice versa. Ibn Jinni also says that grammarians call *kalaam* 'speech' a *jumla* 'sentence' (Ibn Jinni, 1952).

The end of the *jumla* (example 1) is determined because we introduced the conjunction word *wa* and the clauses have become dependent for the same reason. Once we introduce a link, the hierarchy of the constituent changes regardless of its surface structure. The structure change also affects it semantically. In example (1) al-awlaad (the doer) performed two activities not one and if we just look at the first clause independently, then it means they were involved in one activity. There is a difference between a person who has dinner and goes straight to bed and another who has dinner, brushes his teeth and then goes to bed. Once the activities increase, it is reflected in speech should the speaker wish to tell someone about what he did. The order of his activities also determines the order of constructions in a sentence. If, for example, the boys ate their dinner first and had coffee after that, the clause 'the boys ate their dinner' precedes the clause 'had coffee' obviously due to the conjunction word *wa*. Furthermore, the two construction are not independent otherwise we would not have an anaphoric relationship between them. If example (1) consisted of two independent jumlas, then we would have said:

> *akala al-awlaadu tacaamahum wa shariba al-awlaad al-qahwa,* instead of :
> *akala al-awlaadu tacaamahum wa sharibuu al-qahwa,*

where *uu* is the pronoun suffix for third person plural in Arabic. Regardless of the status of the jumlas independently, the fact that we introduced the conjunction word *wa* transformed the jumlas into clauses, i.e. we have changed the category of the construction from jumla to clause (reduced its hierarchical order).

So far, we have established that Arab grammarians do not recognise a construction called clause in their literature, yet they admit that there are complete and incomplete sentences. The incomplete sentence is one which consists of all the grammatical elements in a specific linear order (grammatically complete), but is dependent and, is part of a larger sentence. In other words what Arab grammarians call an incomplete sentence is actually a clause (since it contains a verb, subject and object and is dependent on the larger unit, i.e. the *jumla*). This, however, should not be confused with what Ibn Jinni called an utterance, which is grammatically and semantically incomplete, yet independent.

I mentioned earlier that in the particular case of a coordinate sentence, Arab grammarians regard the two clauses in example (1) as two jumlas since they say that the construction preceding or following the conjunction *wa* can exist on its own (i.e., be independent) and still be meaningful. However, they do not use the same argument for other types of sentences in Arabic. To demonstrate, let us look at the following conditional jumla:

> *in darasa Sami lil-imtihaan sa yanjah-(3)*
> 'If Sami studies for the examination, he will pass'.

If we use the underlined jumla out of context, then we will have:

> *darasa Sami lil-imtihaan (4)*

which is grammatical and meaningful as far as any person who studied Arabic grammar is concerned. But, Arab grammarians consider (4) to be incomplete because it is part of a larger construction and once you move it out of context you have ruined the coherence of the conditional jumla. Moreover, the conditional jumla (3) is governed by the condition marker (relater) *in* which heads the jumla and the protasis (the underlined construction) requires an apodosis (the remainder of the construction). The second argument they use to regard (4) as incomplete is that the end of the conditional jumla in (3) is marked by the last word *yanjah* at which we can pause or stop (final intonation) so that the jumla can be meaningful. This contradicts the method they adopted to justify the independence of the conjunction clause in example (1), i.e. moving it out of context. It also shows that they neglected the role of the conjunction word *wa* , yet they emphasised the role of the condition marker *in* in example (3) . How did they resolve this dilemma then?

In the case of the coordinate jumla, they argue that clauses in example (1) were independent sentences and were connected later on by the speaker, while in the conditional jumla, the protasis needs an apodosis; therefore, the two are inseparable since the latter depends on the former (to make sense or be meaningful).

Now both the coordinate sentence (1) and the conditional sentence (3) are similar in construction since they consist of two clauses each and a connector. Using one version of the tagmemic theory, where slots and fillers are utilised, examples (1) and (3) can be analysed as follows:

Sentence (1) = +base1: clause1 + link: conjunction + base2: clause2
slot filler slot filler slot filler
Sentence (3) = +relator: conditional marker + base1 : clause +
base2: clause

(the clauses have not been marked for dependency , since the purpose of the paper is to prove their existence as syntagmemes rather than showing their types).On the clause level; the underlined construction in example (1) can be tagmemically analysed as follows:

clause (1) = +predicate: verb +/- subject: noun +/- adjunct: noun

while an analysis of the first clause or protasis in example (3) will yield:

clause (protasis) = +predicate: verb +/- subject: noun
+/- adjunct: prep. phrase

The construction of the two clauses analysed above are identical, save one difference in the adjunct slot (where the filler is a noun in the first clause and a prepositional phrase in the second) and this is not diagnostic, according to Longacre.

Based on the literature of Arab grammarians past and present, the hierarchy of constituents starting from the smallest linguistic unit up to the sentence is:

morpheme-----word------------phrase--------- sentence

However, since they do have constructions called incomplete sentences, we should incorporate it in the hierarchy as follows:

morpheme-----word------phrase-------incomplete sentence---sentence.

and instead of calling it an incomplete sentence, we shall call it a clause.

A clause, therefore, is a linguistic construction that exists in Arabic but is given the same weight as sentence. We will also find that the definition adopted by Arab grammarians for an utterance *'kalaam* is parallel to the definition of a sentence (see Cook1969).

Problems in Arabic Terminology

The absence of a term for a clause in Arabic poses a problem; Al-ansari used the term *jumla sughra* 'smaller sentence' to refer to an incomplete sentence (clause) in order to differentiate it from *jumla kubra* 'larger sentence', but modern linguist would have preferred a specific term " to make linguistic research and analysis easier" (Abaada, 1986). Some Arab linguists tried to come up with a solution using the word *ʿibaara* (literary translation 'expression) to refer to clauses, while others use *murrakkab* (literary translation 'compound') . The latter may be more accurate since the former refers to a unit that is larger than a clause. Another problem which has yet to be resolved is the definition of a sentence; Some call it *jumla*, while others call it *kalaam*. Yet we find others who consider both to be separate grammatical constructions; Al-ansari says: "*kalaam* and *jumla* are not synonymous as some people might think: *Kalaam* is larger and more general than *jumla*" (Al-Ansari, 1979). He also talks about confusions surrounding this misinterpretation when it comes to counting the number of jumlas in a verse of the Holy Quran (some say that a particular verse consists of 3 sentences, others say 5 and so on). Does Al-ansari use the term *jumla* to refer to what we call a clause and *kalaam* to refer to a sentence? It would seem so, given his description of *kalaam*. Naturally, one of the main reasons for such discrepancies is the Arab grammarians' obsession with the parts and not the whole construction in language; they have failed to look beyond the sentence and did not concentrate on discourse.

Since the word jumla is a grammatical term associated with an old grammatical tradition in Arabic linguistics, it is safer to use it to refer to a sentence in linguistic terms (not to mention the fact that it has been translated into 'sentence' in English'). The final intonation contour should also be utilised by Arab linguists to mark the end of a sentence, since controversy still surrounds completeness or incompleteness of this grammatical unit, as well as its boundaries.

As for the clause, there should be a specific Arabic term for it , to avoid confusing it with a sentence. The term *'murrakab'* seems to be the best suggestion so far, but there should be a consensus among linguists to use it in this sense.

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AN ANALYSIS OF OLD ENGLISH POETIC SYNTAX

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It is argued in the literature that the syntax of poetry in Old English differs from that used for prose because of the requirements of poetic form and structure. This argument assumes there is such a thing as poetic syntax with a system of rules that controls its organization. There have been no extensive studies of poetic syntax in order to determine structure, grammar, and rules.

The present study likewise assumes that the poetic syntax of Old English poetry is an entity that can be defined by an analysis of the data provided by the poetry itself. The study also assumes that the form of Old English poetry is real. The idea of of poetic syntax implies that a system of poetic grammatical rules exists. A poem is more than just a collection of individual alliterative lines but is a specific entity having an orgnized and coherent content. Its basic building block is the alliterative line (cf. Collins 1984). In the literature the primary distinction between the syntax of prose and that of poetry is said to be dislocation and disjunction coupled with the extensive use of synonyms, adjecival substantives and appositives. No mention is made of specific grammatical rules.

Disjunction and dislocation are described in the literature as outcomes or results--what is found in the lines of the poem--but not processes. However, both are processes. Disjunction separates elements of a syntactic unit by an outside clausal element, e.g., the insertion of a direct object nominal or a verb between an adjective and its noun head. Dislocation is the reordering of the elements making up any syntactic unit. Instead of using the order common to the language, placement is dependent upon alliteration, from normal order 'adjective + genitive + noun' to dislocated order 'genitive + noun + adjective'. These processes were used in authorial manipulation of the language in order to satisfy a set of rules controlling poetic form and to satisfy poet's choice.

Preliminary analysis supports the test hypothesis that adherence to the alliterative form requirements caused many instances of ambiguity and obscured meaning. It also revealed that factors other than disjunction and dislocation affected the syntax found in Old English poetry.

The structure of Old English poetry was organized around the line which is clearly delineated by the alliteration (the rhyming of initial consonants or vowels of certain words receiving primary stress). Each line consisted of two halflines, separated by a caesura, yet linked by initial sound rhyme or alliteration.

Complete clauses ended either at the caesura or the line end, but not in the middle of a halfline. Four words in a line could carry primary stress, but three at most could alliterate, one or two in the a-halfline, but only one in the b-halfline. Only the third primary stress of the line (always in the b-halfline) could alliterate. Since only the word receiving the third stress of the line could alliterate, it indicates to us today the alliterative pattern of the line. This does not mean that the poet had to match alliteration in the a-halfline to that of the b-halfline, an awkward way to compose. The fourth stress never alliterated, unless there was double alliteration within the line. Although hypermetric lines often had more syllables than four receiving primary stress, the restriction to three alliterated words in a line was maintained.

Line divisions were not indicated in the Old English MSS in the manner they are presented in modern editions of the poetry. There the poems were written continuously from border to border just as prose pieces were. However, the boundaries of each line can be determined by the pattern of alliteration.

Unstressed syllables were not restricted in number in the line, ranging from seven to fourteen, according to content and words chosen to present content. Analysis suggests that the line variation in the number of unstressed syllables is irrelevant.

Operating Variables:

There were four types of variables involved in developing a poem in Old English, the first three of which were the operating ones--antecedent, independent, and intervening--while the last was the dependent variable or the result. Figure 1 provides a diagram of the workings of the operating processes involved in the development of the dependent variable, outlining all of the relationships and interactions.

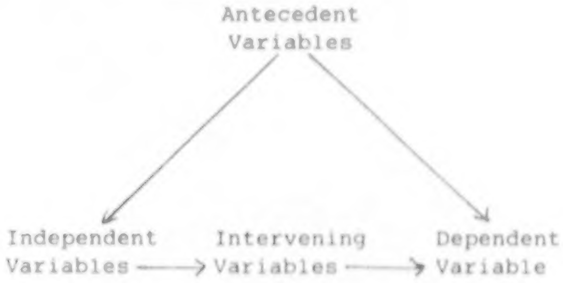

Figure 1: Interaction of the Operating Variables

When Old English prose grammar could develop an alliterative line, no intervention was required. The alliterative line evolved from the operations of the variables, the inherited language and Old English grammar (see Table 1 in the Appendix for specific components of the variables).

Antecedent Variables:

Antecedent variables controlled both prose and poetry. They preceded all the other variables in time, affecting all of them, providing the background from which the dependent variable eventually developed. The antecedent variables involved in creating the alliterative structure were as follows:

Old English Grammar and Inherited Language Structure: Old English grammar controlled the creation of prose. The inherited OV organization of Old English dictated the syntactic form by controlling the word order within a syntactic unit. Any syntactic unit could be so affected (clause, noun phrase, verb phrase, prepositional phrase, genitive phrase). In OV structure a main verb is clause final; a governing noun is phrase final; the main verb in a two or three verb sequence is sequence final.

Changing Language Structure: Old English was a language changing in organization from OV type to VO type. Therefore, some syntactic units followed the original OV patterning, others the encroaching VO type, and some a mixture of both. The OV patterning occurred in the ordinary course of events, but when it did not or could not permit alliteration, either VO patterning or mixed patterning was used (OV and VO in the same clause).

Availability of Synonyms: A large pool of synonyms allowed fulfillment of the alliterative requirements without compromising content. Without this resource the poet would have been hard pressed to develop the required number of alliterative patterns in order to create the poem. The great diversity in synonyms is illustrated by the fifteen synonyms for 'God' having nine different beginning sounds: Aeþeling, Anwealda, Crist, Cyning, Drihten, Ealdor, Frea, God, Haeland, Haeleð, Heahfaeder, Hlaford, Scyppend, Wealdend, Weard.

Tolerance for Variation: A language changing its structure demands great tolerance in the population for competing variations. Fortunately, such a tolerance was present in the culture during this period. This variable permitted the use of dislocation and disjunction It was a necessary factor in the development of a poetic structure that had a specific form to be realized in a language that was changing its structural organization--a square peg/round hole situation.

Inherited Poetic Form Requirements: In order to develop the necessary alliterative patterns certain background information was required. The poet had to understand the rules for poetic form and alliteration in order to attain the proper patterns and to determine what stylistic features could be used for variation and effectiveness along with proper line development. The use of interwoven clauses maintained interest and pride of accomplishment in the audience because they could understand complex, oral passages. Poetry in Anglo-Saxon England was presented orally to the audience, but not read by it.

Independent Variables: Independent variables are presumed causes related to a presumed effect--the dependent variable. They provided the means that eventually satisfied line requirements.

The action of the independent variables could result sometimes in lines containing scrambled syntax and ambiguous meaning. Ambiguity could be difficult to resolve because order was abnormal and because the Old English inflectional system was collapsing so that the same form could indicate several separate meanings and, therefore, really signal nothing (cf. Collins 1980; 1981).

The first independent variable consisted of those specific grammatical rules derived from the antecedent grammar that gave rise to an alliterative line. These are the grammar and rules used for prose.

The first rule permitted the use of six kinds of substantives to replace various parts of speech.

The first substantive type permitted was a single adjective used as a noun phrase.

(1) hwaéðere þaer fúse|feórran cwóman *Dream of Rood* 57
(nevertheless, hastening [ones] came there from afar)

The plural inflection on 'fuse', the substantive, agrees in number and person with the inflection on the verb 'cwoman'. 'Fuse' is interpreted today in the literature as 'those who came'. In the literature it is considered the subject because the real names, 'Joseph of Arimathea' and 'Nicodemus', do not occur in this poem. These names could not have alliterated with any word in the line. Although 'fuse' is considered to act as a subject in the literature, I suggest that this is an attempt to impose the Modern English rule 'every sentence has to have a subject' onto Old English. 'Fuse' is a manner adjective describing those who are not mentioned, but it is not a clause subject. The citation should be read: 'nevertheless, [they] came there, hastening from afar'. The subject in this clause is indicated by the verb inflection just as it is in those clauses containing neither a subject nor an adjective that could serve as a substantive subject. This particular substanive use is an inheritance from ProtoIndoEuropean through ProtoGermanic, a time when the overt presence of a subject in a sentence was not required but optional, its identification derived from context.

The second substantive type permitted is a demonstrative + weak adjective construction used as a complete noun phrase.

(2) |ond se gálmóda
égesfull ond áfar| *Judith* 256
(and the licentious [one], terrible and fierce)

'Se galmoda' is regarded as a complete subject noun phrase. It describes Holofernus accurately and fits the alliterative pattern. The name 'Holofernus' certainly could not alliterate.

The third substantive type permitted was a reduced relative clause used as a nominal in any noun position: (sepe waes nida geblonden > nida geblonden).

(3) |Het ða níða geblónden
þa eádigan maégð|ófstum fétigan *Judith* 34
(then [the] mixed-of-evils [one] commanded hastily to
fetch the blessed maiden)

The fourth kind of substantive allowed was that of number and person indicated by the verb inflection, which could be used as a stand-in or indicator for an omitted subject. The verb inflection indicates number and person of both the verb and the subject. Context gives the missing subject a name.

(4) éfste þa swíðe|ond ónétte Genesis A 2874
([Abraham] then hastened quickly and [he] rushed)

The omitted subject 'Abraham' could have been used as it would alliterate with the initial vowel of 'onette'. However, its omission was deliberate (poet's choice); context made clear the identity of the subject. Two primary stresses could occur in two different syllables of the same word.

Syntactic parallelism or attributive apposition, the fifth substantive, was the use of appositives (phrases, or words, using synonyms) that described a previously given entity without reusing those words originally used.

(5) swá se ínwidda|ofer eálne daég
dr´yhtgúman sine|dréncte with wíne
swíðmod sínces brytta|oðþaet hie on swíman lagon
oferdréncte his dúguðe ealle|swylce hie waeron
deáðe geslégene
agótene góda gehwylces |
Judith 28
(so [the] deceitful [one] over all day his retainers drenched with wine, arrogant giver of treasure (appositive), until they in a stooper lay, overdrenched all his companions (appositive), as if they were slain to death, drained of each one of good [things])

The use of this rule permitted fulfilling the alliterative requirements that a specific word itself could not do. It also permitted that stylistic features of emphasis and elaboration could be incorporated. Appositives were not restricted to individual nouns, adjectives, verbs, and adverbs but also could include complete or partial clauses, phrases, subjects, predicates, genitives, vocatives, and others.

(6) ongýrede hine þa geóng haeleð|þaet waes Gód Aélmihtig
Dream of Rood 39
(then the young man stripped himself--that was God Almighty (appositive))

The last substantive used was that of an auxiliary verb which could be used alone with omission of either a main verb of motion or of 'wesan', the infinitive form of 'to be', (cf. (27) for latter).

(7) |sóna waeron geárwe
haéleð mid Hláford|to þaere hálgan býrd
Christ II 460
(soon warriors were ready [to go] to the holy city)

Gapping, the second grammatical rule, also permitted adherence to alliterative requirements. This allowed the omission of an identical clausal element(s) if it had occurred in a previous clause. There were three forms: simple/successive (one word), alternating/successive, and progressive gapping.

In simple gapping the nominal was deleted from subsequent clauses where the same one pertained.

(8) se ponne pisne weálsteál|wíse gepóhte

ond þis deórc líf|deópe geondþénceð
fród in férðe|feór oft gemón
waélsleahta wórn|ond þas wórd acwíð *Wanderer* 87
(he, then, wise in spirit, this site and this dark
life deeply pondered on, with wise thought; from
long ago [he] remembers many battles, and these words
[he] says)

'Se' is the subject of the verbs 'geondpenceð', 'gemon' and 'acwið'. Its subsequent deletion changes the number and metric patterns of the unstressed syllables in the lines.

The second type of gapping permitted alternating/successive gapping of two different subject nominals from two or more separate successive clauses to occur within the same passage.

(9) ða þaer Byrhtnóð ongan|béornas trȳman
rád and raédde|ríncum taéhte
hu hi scēoldon stándan|and þone stéde heáldan
and baēd þaet hyra rándas|ríhte heóldon
fáeste mid fólman|and ne fōrhtedon ná.
(when there Byrhtnod began to marshall [his] men;
[he] rode and [he] instructed; to the warriors [he]
taught how they should stand and [how they should]
keep the place, and [he] commanded that [they]
rightly] hold their shields and [that they] not
afeared [be] never)

In this passage alternating/successive gapping occurs in the clauses relating the interplay between Byrhtnoð and his warriors, each a subject of a different set of interrelated clauses.

Progressive gapping occurred when certain clausal elements were omitted from successive clauses where they normally would have been included, with an additional element(s) omitted from each successive clause.

(10) þa geseáh ic þa gedríht|in gedwólen hweórfan
Ísrahela cȳn|únriht dón
wónnas wyrcean| *Daniel* 22
(then saw I the nation into heresy turn, [then saw I]
the kin of Israel do unright, [then saw I the kin of
Israel] work crimes)

Progressive gapping, too, affects line metrics, setting up different rhythms from what would occur if there had been no gapping. Any element or elements in a syntactic unit could be gapped.

(11) he ús unlȳsde|ond us líf forgeáf
heáfonlicne hám| *Dream of Rood* 47
(he freed us and [he] gave us life, [and he gave us]
a heavenly home)

The third grammatical rule permitted the use of *apo koinau* where one element has the same function simultaneously in two separate clauses but with only one occurrence.

(12) |cwaeð he gúðcyning
ofer swánráde|sécan wólde *Beowulf* 199
([he] said he would seek the battleking over the swan road)

In this *apo koinau* construction 'he' is subject to the verbs 'cwaeð' and 'secan', each verb occurring in a different clause.

An individual clause syntactic unit, the fourth rule, could straddle either the caesura or the line end or not according to poet's choice. Here the noun phrase bridges the caesura between the adjective and the noun for alliterative reasons.

(13) ac fóre þam maéstan|maégeneárfeþum Christ III 963
(but before the greatest miseries)

Below, 'upheofan torhtne' occurs through dislocation from 'torhtne upheofan'. It straddles the line end for alliterative purposes; 'torhtne' is in the accusative as is 'upheofan' and would precede 'upheofan' in normal adjectival order.

(14) |saés mid hyra físsum
eórþen mid hire beórgum|ond úpheófan
tórhtne mid his túnglum| Christ III 966b
(seas with their fish, earth with her mountains, and
the bright heavens with his stars)

Any kind of syntactic unit could bridge the caesura or the line end break. Here, in (15) the genitive construction 'Adames cyn' straddles the line end between the genitive noun and its governing noun.

(15) |þaet þaer ádámes
cyn ceárena full|cwíþed gesárgad Christ III 960b
(that there Adam's kin, full of sorrows, laments,
distressed)

Word order does not affect bridging (see (25) and (26) below). Here the two genitive constructions contain the same words, but the one with reverse order ends at the caesura, while the other with normal order straddles the caesura.

The fifth grammatical rule permits an ordinarily unstressed syllable be given stress and alliteration when the requirements demanded it. This was accomplished by dislocation. The order of the preposition phrase 'on him' is reversed to 'him on' so that the unstressed preposition could be stressed. This reversal provided the required alliterative match and required primary stress.

(16) ýldo him ón fareð | ónsyn blácað Seafarer 9
(age on him goes, face bleaches.)

Postcedent identification of a pronoun, the sixth rule, was also permitted when alliteration requirements demanded it, even though it could have delayed processing of information. In Old English pronoun identification usually preceded the occurrance of the pronoun. This new rule reversed the order of the pronoun and its noun identification via dislocation.

(17) |þe ge wáfiað...
súnu Sólime|sómod his dohtor Christ I, 89a...91a
(which you wonder at...son of Salem, together with
his daughter)

The large pool of synonyms that occurred in Old English, the seventh grammatical rule, provided a wide range of choices of individual words to prevent repetition of the same word in order to establish the alliterative line.

(18) |þaer þu scealt ád gegaérwan
baélfyr beárne þinum| Genesis A 2856

(there you shall build a fire, a baalfire, for thy son)
'Ad' and 'baalfyr' are synonyms for each other, the latter being in apposition to the former.

The last rule, that governing interwoven clauses, was that the syntactic units selected from a number of different but successive clauses could be intertwined in order to develop the alliterative line.

The action of the independent variables in attempting to develop the alliterative line has resulted in a number of passages in which meaning is ambiguous and sometimes almost incoherent as the analysis below demonstrates.

(19) |þaer hy tó ségun
1 2 3 4
þaþe leófes þa gén|lást weárdedun
5' 6 7' 8 9'
on pam þíngstéde|þégnas gecórene Christ II, 494 (Cook)
10' 2-a
[there they, chosen thanes, look to [the] dear's tracks
1 2 2-a 4 3 6 8
which then yet remained behind on the meeting place]
5' 7' 9' 10'

The numbers and letters below the citation show how the Modern English version differs from the Old English one, while indicating the boundaries of each clause. This example is interesting because it demonstrates a weaving together of two clauses to fulfill alliteration requirements as well as to add interest. The weaving together of two or more separate clauses occurred fairly frequently in Old English poetry, but was more highly developed in the Old Norse poetry. This was a technique used to enhance interest, and decipherment of the intertwining was a sort of skills test for the poet and the listener.

Intervening Variables: The intervening variables are factors that allow the independent variables to change the prose language patterns so that the alliterative line (the dependent variable and the outcome of the interaction among the variables) could be developed. The intervening variables intervene between the independent variables and the dependent variable, manipulating both of them on the way to attaining the alliterative line.

These intervening variables consist of the reordering and separation processes of disjunction, dislocation, and the two in combination. These are the processes that come into play when the normal operations of the antecedent variables are not adequate to develop the alliterative line.

Disjunction is the insertion of an outside clausal element between two elements of a syntactic unit which remained in correct word order.

(20) þa þaes rínces|se ríca ongán
cýning cóstigan| Genesis A 2846
[then the powerful King began to test the man]

The auxiliary verb 'ongan' separates the demonstrative + weak adjective 'se rica' from its noun 'cyning'. It is suggested in the literature that 'se rica' is a substantive meaning "dear one" and that 'cyning' is an appositive. However, this interpretation is not supported by the data. Analysis shows the construction is a demonstrative + weak adjective + noun with the noun separated from the first two elements.

Dislocation is the reordering of the elements making up a syntactic unit with the elements of the unit remaining adjacent to each other, although they were often in scrambled order.

(21) geségon hy aélbeorhte|énglas twégen
faégre ymb þaet Frúmbearn|fraétwum blícan
Christ II 506
(saw they all-bright angels two fair about the
Creator's Son with treasures shine)

The literal order is given above. The normal Old English order here should be 'two, fair, all-bright angels'. This is an excellent example of dislocation--two elements in the syntactic unit are not in normal order. Disjunction occurs with the insertion of other clausal elements between the verb 'gesegon' and the infinitive 'blican'.

The combination of both disjunction and dislocation involving the same construction also was permitted, i.e. mixing.

(22) |þaette Súnu waére
in míddangeárd|Meótudes acénned
in Bétléme| Christ II 453
(that the Creator's Son were born on earth in
Bethlehem)

Dislocation occurs in 'Sunu Meotodes' (N + genitive) and disjunction simultaneously with the insertion of 'waere in middangeard' between 'Sunu and Meotudes'.

(23) hweárf þa to hélle|swa he hráþost meáhte
eórl ácolmod| Azarius 166
([the] terrified earl then turned to hell, so he
quickest might [go],

In (23) there are two instances of dislocation involving the same syntactic component, the subject. The first occurred between the subject and predicate with the insertion of the dependent clause between predicate and subject with the subject noun phrase clause final. The other occurred between the subject noun and its adjective.

In the citation below, a VO type clause, dislocation caused subject/direct object reversal.

(24) wádan ofer weáldas|wúdu baer súnu Genesis A 2887
(wade over forests, son bore wood)

Both nouns belonged to the u-declension, a declension in which the inflection system could not indicate which nominal was subject and which was the object because the inflections were identical. Only previous language knowledge would let this clause be processed. Role and clause subject were immediately ascertained. 'Wood' could not possibly be an agent. Regardless of its clause initial position, it could not be the clause subject. Only 'sunu' could be an agent and concomitantly the subject regardless of its position.

Poet's Personal Choice: The effect of the personal choice of the poet upon the syntax is clearly demonstrated. There are many instances where dislocation and disjunction were unnecessary, but occurred even though all line requirements could be satisfied by using prose syntactic order.

(25) wiþ Eádweárdes|áfaren plégodan
Battle of Brunanburh 52
(against Edward's children [they] played/fought)

This citation shows a syntactic unit in prose order which satisfied the requirements even though it straddled the caesura. However, this order could be reversed, as it is in (26).

(26) áfaran Eádweardes|swa him geaéþele waés
Battle of Brunanburh 7
(children of Edward, as was inherent to them)

Poet's choice prevailed in both (25) and (26) with a different order resulting for each, although either order would have satisfied alliteration requirements.

Alliterative Requirements: Knowledge and understanding of these were necessary in order to replicate the inherited form.

Authorial Manipulation: In order to develop alliteration in each line, the poet had to be able to manipulate both the appropriate variables and the language in order to attain the proper line.

Dependent Variable: There is only one dependent variable--the alliterative lines. This variable is developed from the interaction of the other variables. It is the output or result of the interaction. The alliterative line is the basic and the only unit of the poetry. A poem in Old English is composed of one alliterative line after another until the narrative or story line is concluded.

(27) þeah þe graéf will|gólde stregan
1 2 3 4 5
bróþer his gebórenum|bȳrgan be deadum
6 7 8' 9'
máþmum míslicum|þaet hine míd wille
10' 11" 12" 13"
ne maeg þaere sáwle|þe biþ sȳnna fúl
14* 15* 16* 17+ 18+ 19+
góld to geóce|for Gódes égsan
20* 21* 22*
þonne he hít aer hydeð|þenden he hér leofað
23¶ 24¶ 25¶ 26¶ 27¶ 28° 29° 30° 31°
Seafarer 97

(though a brother will strew a grave with gold for his
1 6 3 5 2 4
born-brother, [though a brother will] bury [him]
7 8'
among the dead with great treasures that [he] desires
9' 10' 11" 13"
with him, when he hides it before, while he lives
12" 23¶ 24¶ 27¶ 25¶ 26¶ 28° 29° 31°

here, before God's awful power gold may not [be] a
30° 22* 20* 15* 14*
help to the soul who is full of sins
21* 16* 17+ 18+ 19+

The manipulation of the language and the various independent and intervening variables which compose and structure the alliterative line presents an interesting complex of interwoven dependent and independent clauses. In (27) six dependent clauses are intertwined with one main clause by the processes of dislocation and disjunction of predicate and subject (clause 1); gapping [peah pe broper] clause 2); poet's choice dislocation of [mapmum mislicum] (clause 2); gapping of subject [his geborenum] (clause 3); dislocation and disjunction of predicate and subject, omission of the main verb 'wesan' in the main clause (clause 4). Furthermore, the last line of the passage, clauses 6 and 7, was misplaced deliberately in the passage for alliterative purposes. The relative clause was placed in the right place, immediately following its antecedent 'sawle' in the Old English version (clause 5). For the proper sequencing of content, the last line of the Old English version should have been placed following clause 2 (clauses 6 and 7); it was displaced from its normal position for alliterative purposes. The dependent clauses 5, 6, and 7 were not affected by the intervening variables because the prose Old English grammar provided the alliterative line, and no intervention was required. The primary goal was to satisfy alliteration requirements. This was accomplished. The passage shows where prose grammar and rules could apply and where they could not, and where intervening variables were required and where not.

CONCLUSION

If the regular Old English grammar could not develop the dependent variable (the alliterative line) then independent and intervening variables, as identified by the poet, were used to satisfy line requirements. If the prose grammar could provide for the development of the alliterative lines, then no intervening variables were required. If only an unstressed syllable was available for alliterative purposes, then primary stress could be applied to that unstressed syllable. Interweaving of a series of clauses with each other occurred even though it sometimes resulted either in ambiguity or obscurity of meaning.

A distinct poetic syntax with specific grammatical rules for poetry did not exist. Only grammatical rules for prose, that were also used in the composition of poetry, did. Word order by poet's choice was more common than expected. Cassidy and Ringler are partially correct in their suggestion that only a few broad languages rules were used specifically in the poetry. Each alliterative pattern was restricted to one line. The pattern could not cross the line end. Alliteration could not force too bizarre a syntax so that meaning would be lost.

The analysis has clearly defined the type of variables that identified the processes involved in the development of the alliterative line, e.g., the antecedent, independent, intervening, and dependent variables, common to the scientific method. This paper has utilized the scientific method and its components to identify, isolate, and define the variables associated with the differences between prose syntactic form and structure with that of poetic syntactic structure and form. The results of this comparative analysis finds that there is no such thing as Old English poetic syntax and that poetic syntax is nothing more than the alliterative line--the dependent variable.

The reason the syntax has been called poetic syntax is because it is found in what we label poetry, which may or may not be what it was considered to be in Anglo-Saxon England. The syntax found in the poetry does not seem to have any unique features to distinguish it from prose syntax. This analysis demonstrates that Old English did not have an autonomous poetic syntax. In fact, what we call Old English alliterative poetry may be in actuality Old English alliterative prose.

An Old English poem is a series of prose alliterative lines held together by the story/content. Poetic syntax is a unicorn--fanciful, beautiful, and non-existant.

Data Sources:
Data were abstracted from the Old English poems Andreas, Azarius, Battle of Brunanburh, Battle of Maldon, Beowulf, Christ I, II, III, Daniel, Dream of the Rood, Elena, Genesis A, Gudlac I, II, Judith, Juliana, Rune Poem, Seafarer, Wanderer, and Wife's Lament. Genesis B was omitted because it is a literal translation of the Old Saxon original. Only selected examples of the abstracted data were used.

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APPENDICES

Table 1: Components of the Operating Variables

Antecedent Variables

An observed relationship that is explained in terms of a third factor which occurred earlier than the independent variable and is related to both the independent and dependent variables. It consists of those features that come before and which affect the independent, intervening, and dependent variables.

1. Old English Grammar and Inherited Language Structure
2. Changing language structure
3. Large pool of synonyms
4. Tolerance for variation--cultural factor
5. Inherited Poetic Form Requirements
    a. Rules for interweaving syntactic units from multiple clauses in order to attain an alliterative line yet also permit coherence
    b. Rules necessary to develop properly organized lines and patterns of alliteration

Independent Variables

The independent varible is a presumed cause that is related to a presumed effect--the dependent variable.

1. Those specific grammatical rules derived from the antecedent grammar that will give rise to an alliterative line--dependent variable
    a. Substantives
        1) Adjectival
        2) Demonstrative + weak adjective
        3) Reduced relative clause
        4) Number and person in verb inflection indicate subject
        5) Syntactic parallelism/appositive attributes: descriptive phrases which identify the person or thing replaced or elaborated upon by the appositive
        6) Auxiliary Verb substantive for either a main verb of motion or 'wesan', the infinitive form of 'be'.
    b. Gapping: simple/successive (one word), alternating/successive, and progressive
    c. Apo koinau--the same subject for two separate clauses but expressed only once
    d. Bridging of caesura or line end by a syntactic unit
    e. Auxiliary verb only, main verb or 'wesan' omitted

f. Stressing unstressed syllables or words
g. Postcedant identification of pronoun
h. Interwoven clauses
i. Selection of Synonyms for alliterative purposes by eliminating repetition of the same word

Intervening Variables

Intervening variables come in between the independent and dependent variables. They manipulate the various independent variables in order to develop the dependent variable. These are:

1. The processes of dislocation, disjunction, and/or the two together, the latter operating on the same syntactic unit simultaneously. These processes act upon the independent variables in order to develop and maintain the alliterative patterns and lines.
2. Poet's choice operates for selection of word order reversal or normal word order if alliterative requirements can be met with either order.
3. A knowledge and understanding of alliterative requirements so that the alliterative line can occur
4. Authorial maniupation of variables and language to bring about desired and required result.

Dependent Variable

1. The alliterative line with its patterning.

Table 2: List of Symbols

´ = primary stress
| = caesura
/ = end of alliterative line
_ = alliterated consonant or vowel
... = omitted text
< = 'from' (that which follows the <)

A LINGUISTIC APPROACH TO QUESTIONS

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The term 'question' has frequently been used by linguists as though a clear idea existed of what a question is. Nevertheless, there is no established consensus as to how to define this word. It has been treated as a formal-semantic category (cf. Quirk et al. 1985), as a type of illocutionary act (Lyons 1977, 1981; Huddleston 1984), as expressive of a 'request' or 'directive' (Gordon and Lakoff 1975, Katz 1977) and as a discourse category comprised of all utterances whose goal it is to elicit an obligatory verbal response (Tsui 1992). The early transformational literature on interrogatives simply took the category for granted and debated whether it was better to assume that the starting structure from which a question was derived is essentially the same as that of an indicative sentence representing one of the possible answers to the question or to read into the abstract structure an abstract interrogative element (cf. Hiż 1978: XV). Subsequent treatments have also glossed over the fundamental issue of what a question is. The main dividing-line, if there is one, lies between approaches which treat questions as a syntactic category with certain formal characteristics (Quirk et al., Lyons) and those which deal with them as a discourse category, i.e. purely in terms of their communicative function in an act of speech. Although I shall be siding with the latter view, I am nevertheless of the opinion that a discourse analysis approach fails to address the properly linguistic problem posed by questions, namely why it is that the speaker has recourse to certain linguistic means and not to others when he wishes to perform the type of discourse function which corresponds to questions. Before I get into that, however, I must first justify the analysis of questions as a discourse category, which means briefly summarizing the other definitions proposed so as to show the adequacy of the discourse-functional one.

QUESTIONS AS A FORMAL-SEMANTIC CATEGORY

Quirk et al. (1985) define questions as a "discourse function" or "semantic class" – they are "primarily used to seek information on a specific point" (p. 803) – for which direct association with the "syntactic class" of interrogatives is the norm (p. 804). Interrogatives are sentences which are "formally marked" in one of two ways: in *yes-no* interrogatives the operator is placed in front of the subject (*Did Pauline give Tom a digital watch for his birthday?*); in *wh-* interrogatives the *wh-* element is positioned initially (*What* *did Pauline give Tom for his birthday?*). Quirk et al. hasten to indicate however that the two classes do not always match, as illustrated by sentences such as:

(1) Pauline gave Tom a digital watch?

(2) What do I care?

(3) Isn't Christine clever!

(1) is "syntactically declarative but semantically a question"; the rhetorical question in (2) is "syntactically an interrogative but semantically a statement"; and (3) is "syntactically interrogative but semantically an exclamation" (p. 804). Add to this the fact that subject-operator inversion is found outside of interrogatives (*Never again did Pauline give Tom a digital watch for his birthday*), and one can only conclude the impossibility of establishing any match between formal and semantic criteria as the basis for defining the category of questions. This had already been intimated by Jespersen when he observed, regarding the formal devices for indicating that a sentence is meant as a question (namely special interrogative words, intonation, and word order), that "none of them is an absolutely certain sign of a question, as they may be used for other purposes" (1940: 500).

QUESTIONS AS A TYPE OF ILLOCUTIONARY ACT

Lyons (1977) characterizes questions as utterances which contain the feature of 'doubt' and which are only felicitous if the speaker does not know the answer which would dissipate his doubt. He claims furthermore that although questions are normally associated with the expectation of an answer from the addresse, this association is conventional and is independent of the illocutionary force of a question. This analysis is able, he argues, to cover various types of rhetorical questions without having to treat them as derived from information-seeking questions or as non-questions.

As Tsui (1992: 100) shows, however, it is precisely on the point of rhetorical questions that Lyons' definition encounters difficulties, as according to it they should not be included in the category of questions at all. Commenting on the rhetorical use of *Who cares?*, she argues quite convincingly that this question neither expresses doubt nor implies that the speaker does not know the answer to it. This is supported by the fact that in the conversation in which Tsui observed its occurrence the listener did not supply an answer but rather continued to express his opinion on the topic under discussion.

QUESTIONS AS REQUESTS OR DIRECTIVES

Among the definitions purely in terms of discourse function, questions have been characterized by some as 'requests' which are aimed at eliciting information. Katz and Postal (1964) and Gordon and Lakoff (1975) have proposed that the logical form of questions should be REQUEST (a, b, TELL (b, a, s)) rather than ASK (a, b, s).[1] Questions have been described by others as a sub-type of 'directive' since questions are instructions to perform a verbal act of responding (cf. Willis 1981).

There are important differences between questions and requests however. Lyons (1977) argues that questions cannot be treated as a subcategory of requests because a negative response does not have the same illocutionary force in both cases. A "No" in response to a *yes / no* question such as *Is it snowing?* is an answer to the question, while "No" in reply to a request such as *Pass me the sugar please* is a refusal to do what was requested. This shows that the illocutionary forces of the utterances corresponding to these responses are also distinct.

Another significant distinction has to do with the type of response elicited by these two types of speech act (cf. Tsui 1992). A question calls for a verbal response, the interaction between the speaker and the addressee being completed entirely on the verbal level. A request, on the other hand, elicits a non-verbal response, the interaction being completed at the non-verbal level. This entails that questions have a different discourse function from requests – they are used to obtain different kinds of results by the speaker – and so should not be categorized as a sub-type of the latter.

QUESTIONS AS ELICITATIONS

Following on Sinclair and Coulthard (1975), Tsui prefers to replace the category 'questions' by that of 'elicitations'. The latter is a pure discourse category comprised by utterances whose function it is "to elicit an obligatory verbal response or its non-verbal surrogate" (p. 101). (Examples of non-verbal surrogates of verbal responses are gestures such as a nod or raising one's hand in class.) Sub-types of elicitations can be distinguished on the basis of the different responses sought by the speaker: *elicit*: *inform*, which invites the addressee to supply a missing piece of information, *elicit*: *confirm*, which invites the addressee to confirm the speaker's assumption, *elicit*: *agree*, which invites the addressee to agree with the speaker's assumption that the expressed proposition is self-evidently true, etc.

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[1] a corresponds to the speaker, b to the addresse.

QUESTIONS AS A DISCOURSE CATEGORY AND NOT A FORMAL CATEGORY

Due to the fact that utterances which would unhesitatingly be classified as questions are not associated with any particular formal linguistic device signalling this category in English, it seems preferable to treat questions as a pure discourse category. As seen from the discussion of Quirk et al.'s approach, a description which attempts to correlate syntactic form and discourse function leads to the utilization of different and inconsistent criteria in the definition of questions, thus making this category a half-way house between a syntactic and a discourse category. The most consistent way of defining questions, then, is in terms of the function which the speaker intends to fulfil by means of these utterances.

Although it clarifies matters considerably, this approach is not without problems either. On the one hand, it leads to the exclusion from the category 'questions' of certain utterances which have all the formal characteristics normally associated with this category. Thus *Could you pass the sugar?* would have to be placed in the discourse category 'requests' in this analysis. On the other hand, utterances which have none of the formal characteristics found with classical questions can be used to elicit confirmation of the speaker's assumptions, as in the dialogue below reported by Tsui (p. 94):

(4) H: I...I don't know, see, he has a son at, was in the school last year ah does he have to re-apply?
X: Ah yes, I think so.
→ H: So we'll have to fill out one of those forms again.
X: Yes.

Even though the arrowed sentence is spoken with the falling intonation characteristic of declarative utterances, it is not just a case of the speaker stating a fact but a way of asking the hearer to respond to the tentative assertion (i.e. *elicit: confirm*). The elicitation function of the statement in (4) can be explained quite adequately by the situation in which it occurs, where drawing a conclusion from what X has just said and stating it as such (cf. *so*) can be used as a means of eliciting confirmation that one's deduction is correct.

A QUESTION OF METHODOLOGY

Confusing as it may appear, the confrontation of various points of view with respect to questions shows at least one thing clearly: this type of utterance is not associated univocally with any one linguistic sign in English and consequently is not a language-specific semantic or syntactic category in the language. On the other hand, it is associated non-univocally with certain linguistic elements of the English tongue, namely the following four linguistic signs: (1) *wh-* words, (2) *do* auxiliary, (3) subject-verb inversion, (4) intonation.

Faced with this situation, proper linguistic methodology would require that one first examine these linguistic means in and for themselves, trying to infer what they signify from the observation of the complete range of their uses and not just those in interrogative function. Only once this has been done can any real explanation be offered as to why the speaker has recourse to these linguistic means when he wishes to elicit an obligatory verbal response from the hearer. Thus while agreeing with Tsui that consistency requires the adopting of purely discourse-functional criteria to define what a question is, a linguistic approach to questions has to deal with the problem of explaining why certain linguistic devices are normally used by speakers when they want to elicit verbal responses.

Before we address this problem, the preliminary point should be made that the context of utterance may sometimes render superfluous the recourse to any of the means normally used to elicit verbal responses. This, we have argued, is the case in uses such as (4) above where the simple statement of a fact which the speaker has deduced from what the hearer has just said can be utilized as a means of eliciting confirmation that this deduction is correct. Most frequently, however, the speaker has to use some explicit sign that he is eliciting information, confirmation, etc. from the hearer, so that the latter feel obliged to respond.

A LINGUISTIC APPROACH TO QUESTIONS

A linguistic approach to questions has to deal therefore not merely with *what* the speaker does but with *how* he does it. Speakers of all languages are able to elicit obligatory verbal responses from hearers, but what is of interest to the linguist is the analysis of the linguistic means used to perform this communicative function. An approach which stays on the level of discourse functions will necessarily be classificatory and universalistic: this entails however that it can never claim to be explanatory, as it does not even ask the question of why certain linguistic means must be used in order to elicit a verbal response from the hearer in a given language. In order to attain the level of explanation, one must realize that linguistic signs and communicative functions stand in a means-end relationship to one another and that to explain why certain means are used to achieve certain communicative goals, one must not only examine the nature of the goals but also, and even more importantly, the nature of the means used to attain them. Only in this way can one demonstrate the aptitude of the latter for the ends to which they are put and thereby explain why they were utilized. This is what we shall attempt to do in the remainder of this paper by examining one of the four linguistic devices referred to above in order to see how it contributes to the achieving of the elicitation of a verbal response from the hearer.

WH- WORDS

Wh- words are often mistakenly identified as interrogatives (cf. Quirk et al. 1985: 803, 817; Harris 1978: 7; Karttunen 1978: 166). This overlooks the fact that they are also used as heads of relative clauses, as in:

(5) I took what they were offering me.

It also leads to serious inconsistencies in the analysis of subordinate *wh-* clauses, with the sentence above being treated as a "nominal relative clause" (Quirk et al., p. 1056), while (6) below is categorized as a "*wh-* interrogative clause" (Ibid., p. 1050), despite the fact that they are identical on all levels.

(6) I asked what they were offering me.

On the level of word order, they both lack the subject-verb inversion often characteristic of questions. On the level of intonational patterns, they both have what Labov and Fanshel (1977) call "declarative intonation". And, semantically, *what* can be paraphrased by the nominal phrase 'the thing(s)' in both cases.

The interrogative and relative uses of the *wh-* words are just that – uses, of something which is in itself more general than either of the particular functions to which it can be put. A far more satisfactory definition is obtained by following Le Goffic's approach to the cognate *qu-* words in French and characterizing the *wh*-words as "indefinites." Thus in (5) *what* evokes the things which were being offered to the speaker without specifying in any way their identity.

In questions, the *wh-* word is combined with a number of other factors which work together to produce the overall effect of eliciting information about the identity of the *wh-* word's referent. Let us take (7) below as an example:

(7) What were they offering you?

First of all, there is the clause-initial position of the *wh-* word, whose value can be tentatively defined as having to do with topic status (cf. Langacker 1991: 506). Also involved is subject-operator inversion, the exact import of which cannot be examined here, but which is obviously responsible for the overall interrogative force of the utterance, as the latter would disappear if there were no inversion (cf. *what they were offering you*). Thirdly, there is the presence of stress on *what* and the intonational pattern, which must also be studied more closely, but which can already be related to the topic status of the *wh-* word. It is not too hard to see how the use of a word order indicating that the speaker is eliciting information, together with the fronting and stressing of a word which represents its referent as non-specified, produces the effect of eliciting information about the identity of the non-specified entity which is the topic of the question. This constitutes the framework of a real explanation of why certain linguistic devices are used in questions and why they produce the particular effect which they do when used in this type of discourse function. Such an explanation is a necessary complement to the discourse-functional analysis and represents a truly linguistic approach to the category of questions.

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‘BREAKDOWN’ IN COORDINATION:
How agrees the devil and thee about thy soul?

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Coordination often causes a ‘breakdown’ of the agreement between the coordinated NP subject and the Verb. It is as if a coordinated NP is too complex or opaque for Case and agreement phenomena to see through. I will argue that this complexity is due to a variety of reasons: (a) the asymmetical structure of the coordinate NP; (b) the word order; (c) the unclarity as to whether connection words are prepositions or conjunctions; and (d) the percolation mechanism of the features in an asymmetrical structure. These reasons are not quite comparable because they are interconnected. For instance, with a particular word order, a first person NP may determine the agreement on the Verb.

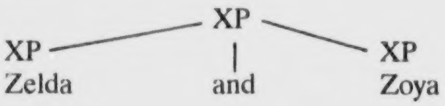
I have ordered the paper as follows. In section 1, I discuss that Case and agreement can be different in coordinates because one of the NPs occupies a ‘privileged’ structural position. In section 2, I show why ‘breakdown’, when it occurs, occurs more frequently in VS constructions. In section 3, I indicate a second, non-structural, reason why one NP may be ‘privileged’ over another, namely if it is more prominent in animacy. In section 4, I indicate that prepositions and coordinating conjunctions are hard to distinguish with apparent failure of agreement. This is not really a case of ‘breakdown’.

1 Asymmetry in cooordinates: ‘privileged’ NPs

In this section, I first give some evidence for an asymmetrical structure for coordinate constructions and then show the repercussions of this for Case and agreement.

Coordinate NPs have often been considered symmetrical structures as in (1). This expresses the intuitive feeling speakers have that *Zelda* and *Zoya* are not subordinate to each other as *Zoya* would be to *Zelda* in a structure such as (2), adapted from Munn (1992):

1.



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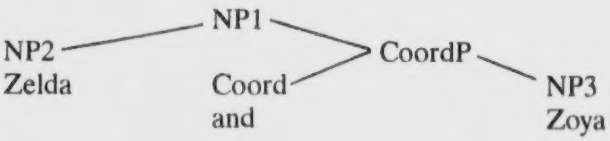


There is, however, evidence for (2), which comes from Ross (1967), in that the conjunction and the second conjunct as in (3) and (5) form a unit, but not the first conjunct and the conjunction as in (4) and (6). The same is true in earlier forms of English as (7) and (8) show:

3. John left. **And he didn't even say goodbye**.
4. ***John left and**. He didn't even say goodbye.
5. John bought a book yesterday, **and a newspaper**.
6. *John bought a newspaper yesterday, **a book and**.
7. Chaucer, *Merchant's Tale*, 1617 (see Roscow 1981)
   Placebo cam, **and eek his freendes** soone,
   'Placebo came, and also his friends soon'.
8. Chaucer, *LGW* 2610
   The torches brennen, **and the laumpes** bryghte,
   'The torches burn, and the lamps brightly'.

I will now indicate what this means for Case to the NPs in a coordinate and for agreement to the Verb. In coordinates, the Case is often 'incorrect' as (9), (10) and (11) show. It is sometimes said (Reuland 1983; Rapoport 1987) that the Case in such instances is a default Case and that in English, the default Case is objective as in (12) whereas in, for instance Dutch, it is nominative as in (13). However, this cannot be correct since the 'incorrect' Case in (9) and (10) is nominative rather than the default objective:

9. They gave **my sister and I** a chocolade pie.
10. This is between **you and I**.
11. **John and me** went to the market
12. **Me**, I don't want to go there!
13. **Ik**, ik wil daar niet heen,
    'I, I want there not to'.

I will argue that the structure of the coordinate is responsible. This is clear from looking at some variants of (9) and (10), namely (14), (15) and (16):

14. They gave **me and you** a pie.
15 *They gave **I and you** a pie.
16. *This is between **I and him**.

In (9), the Case to *my sister* is unclear but it could be objective (the Case to the first conjunct is objective in (14)) whereas the Case to the second conjunct is the 'incorrect' one, namely *I*. This results in an acceptable sentence but the reverse order of the conjuncts as in (15) does not. In (10), which is acceptable, the Case to the second conjunct is the 'incorrect' one but in (16), the nominative Case to the first conjunct renders an unacceptable sentence. Thus, there is a difference between first and second conjuncts. The first one needs to be properly Case marked whereas the second need not be. This is also clear when one compares (17) and (18) on the one hand to (19) and (20) on the other. In head-initial languages such as English and a version of Norwegian as in (24), the first NP, e.g. *me* in (14), *he* in (17), is usually correctly Case marked, but not the second, e.g. in (15), (16), (19) and (20). This means the first NP is checked but the second is taken randomly from the lexicon. I will later tie this to the structure in (2)[1]:

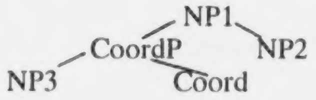
17. He and Mary left.
18. Mary and me left.
19. *Him and I left.
20. *Him and Mary left[2].
21. He and I will be leaving.
22. Robert Greene, *James the Fourth*, 339
    Nor earth nor heauen shall part my love and I.
23. Shakespeare, *Merchant of Venice*, II, ii, 321
    all debts are cleared between you and I.
24. Han och meg var sammen om det,
    'he and me were together about it'.
    (Johannessen 1993, quoting Berntsen and Larsen).

In head-final languages, the situation is the opposite and the Case on the first NP is the 'aberrant' one. The following sentences are from Urdu/Hindi, where *laRkee* in (25), *billii* in (26) and *anjum* in (27) are not 'properly' oblique in (25), dative in (26) and ergative in (27):

25. laRkee oor laRkiooN kaa,
    boys-PL-M-NOM and girls-PL-F-OBL of
    'of the boys and the girls'.
26. Anjum aaj kalii billii oor sufeed kuttee-koo khaanaa deegii,
    'Anjum today (the) black cat and (the) white dog-OBJECTIVE food will give'.
27. Anjum oor uskee aabu-nee aaj ham-koo tennis meeN harayaa,
    'Anjum and her father-ERGATIVE today us tennis in beat'[3].

If Urdu/Hindi has a structure as in (28), the mirror image of (2), it seems as if NP2, i.e. the highest NP, receives the proper Case:

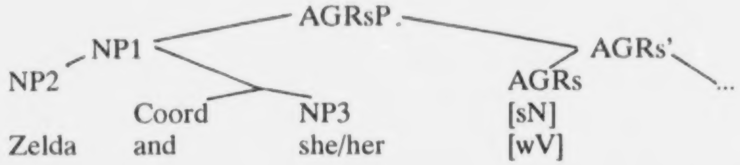
28.



The asymmetry can be described in many frameworks. I will choose a

Minimalist one. In Chomsky (1992; 1994), Case and agreement are not assigned but they are checked. This means an item is taken from the lexicon fully inflected and checked against the features that occupy the functional categories. The latter features are referred to as N- and V-features. In Chomsky (1995), they are referred to as (non-Interpretable) Case and phi-features. Thus, in (29), NP1 checks its Case but the Case it has does not percolate from both NP2 and NP3. The higher one, i.e. NP2, has a privileged position and it is checked against the N-features of AGRs. The shape of NP3 is arbitrarily selected:

29.



The features on the Verb, i.e. agreement, are not 'incomplete' in English as (30) and (31) show, but they can be in Urdu and Welsh as (32) to (35) show. Assuming the structure of the coordinate is as in (28) and (2) above respectively, the 'privileged' NP (the second in Urdu and the first in Welsh) provides the features for the Verb:

30. *You and I am going.
31. *John and Mary is going.
32. kaa3az oor syaahii sastii he,
    'paper-M-SG and ink-F-SG expensive-F is-SG'.
33. Daeth Siôn a minnau,
    'Came-3-SG Siôn and I'.
34. Daethost ti a Siôn,
    'Came-2-SG you and Siôn'.
35. Daethost ti a minnau,
    'Came-2-SG you and me' (cf. Rouveret 1993).

As will be mentioned in 3.3, a person hierarchy is not relevant here since, for instance in (33), the third person unexpectedly 'wins out' over the first. In earlier English, as in (36) and (37), however, a person hierarchy seems to be at work in checking the V-features. As will be discussed in 3.3, I have no explanation why this is the Case in this stage of English and it may not be right to look at these sentences in terms of a person hierarchy[4]:

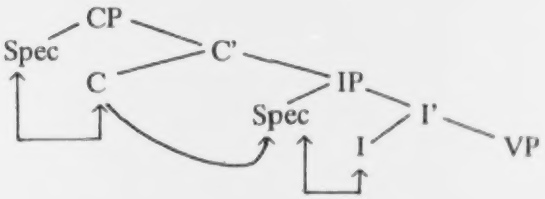
36. Shakespeare, *As* I. 3.99 (Franz 1909: 568)
    Thou and I am one.
37. Milton, *PL* 10, 815 (Mätzner 1864: 155)
    Both death and I am found eternal.

2 Word order: Spec-Head agreement vs government

The second factor I discuss is also relevant in non-coordinate structures and is related to the word order. I will focus on the effects of word order on agreement and conclude with some instances of effects on Case.

As Greenberg (1963) observes, there is less agreement in VS structures than in SV ones. I will relate this to the difference between Case and agreement checking, namely whether it is done in a Spec-Head relationship the squared arrows in (38)), in SV structures, or under a government relationship (the circular arrows in (38)), in VS ones:

38.



In Dutch, nominative is assigned either under government from the Verb in the Complementizer position (cf. den Besten 1983; van Gelderen 1993) to the Specifier position as in (39) or through Spec-head Agreement as in (40). In some cases of VS, as in (39), the agreement on the Verb is deficient, i.e. in (39), it does not indicate second person:

39. Vandaag loop/*loopt jij 30 kilometer,
'Today walk you 30 kilometers'.
40. Jij loopt/*loop vandaag 30 kilometer,
'You walk today 30 kilometers'.

This can be accounted for if the Verb checks its agreement features with the C governing the subject. This is an indirect relationship and some features are not represented on C. The same occurs in earlier English with number as (41) to (46) show but not in modern English (47)

41. *Katerine* 1292-3
Hwider is ower wit 't ower wisdom iwent?
'Where is your understanding and your wisdom gone'.
42. Chaucer, D 1359 (Jespersen 1913: 175)
Thus was the wenche and he of oon assent.
43. Shakespeare, *Merch.* II 2.107 (Franz 1909: 568)
How doost thou and thy master agree?
44. Shakespeare, *Henry IV.1* I.2.126 (Jespersen 1913: 175)
Jack, how agrees the devil and thee about thy soul, that ...
45. Pecock 428, 12 (Zickner 1900: 92)
that ech gouernaunce and al thing ... is unleeful and not worthi be had and

usid.
46. Hwer is Paris and Heleyne (Mossé 1962: 152)
47. *Where is Helena and Paris.

In Modern English, the agreement comes about because of the relationship between the Specifier of IP and the head I. Main Verbs no longer move to C as is the case in e.g. (44). Hence, the agreement differences.

In Spanish (cf. Fält 1972), both possibilities occur: a VS structure as in (48) or an SV one in (49). Again, the SV one brings about the 'correct' agreement:

48. Muchos regalos trajo/trajeron Juan y su mujer,
'Many presents brought-sg/brought-pl Juan and his wife'.
49. Juan y su mujer *trajo/trajeron muchos regalos'.
(from Westphal 1992)

I have mainly focussed on agreement rather than on Case. However, Case is also affected by word order as in (44) where *thee* rather than *thou* is used. In van Gelderen (1995), I have argued that in Yiddish, Case marking is different in VS constructions as well.

The lack of agreement (and Case) described in this section is not directly caused by the coordinate because VS structures in many languages display a lack of agreement. I link it to the difference between agreement (and Case) checking under government.

3 Percolation

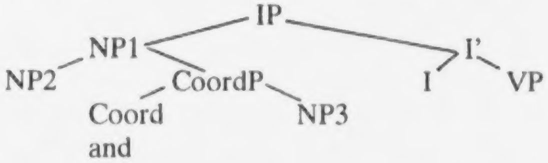
In this section, I examine a number of factors that affect the NP. For instance, if one of the conjuncts is negative, it will make the entire NP negative; and, if the NPs are human, the entire NP will be more transparent. It is hard to test the latter with Case in e.g. English because the inanimate *it* is both nominative and objective. Therefore, I focus on agreement.

3.1 Negation

In (50), *no* is a determiner of one of the two NPs and yet makes the entire NP negative since *ever* needs to be c-commanded by a negative NP (cf. Radford 1988):

50. Many workers and no management ever go there.

51.



Thus, the negative feature of *no* percolates up to NP1. This is not true for all features, however, and this has an impact on agreement.

3.2 Animacy: number and gender

As mentioned in section 1, in Urdu/Hindi, the second NP tends to be properly Case marked. The verbal agreement is also interesting in that when inanimate NP are concerned, the gender and number of only the last NP surface on the Verb (and the Adjective) as (32) above, which is repeated as (52), and (53) show. When animate, human NPs are used as in (54) and (55), the number and gender are marked 'correctly' (in cases of conflict, the masculine overrides the feminine). Hence, the animate gender and number percolate (Barker 1967, I: 75; Platts 1873):

52. kaa3az oor syaahii sastii he,
'paper-M-SG and ink-F-SG expensive-F is-SG'.
53. kitaab oor pensil meez par he
'book-F and pencil-F table on is-SG'.
54. meN or meerii bahn (doonoN) dilii meN rehtee heN,
'I(M) and my sister-F both Delhi in living-PL-M are-PL'.
55. laRkii oor uskii maaN jaa rahtii heN,
'girl-F and her-F mother-F going-F are-PL'.

Even in English, the singular on the Verb is more acceptable with inanimate NPs in (57) than with the human ones in (56) which indicates that human features percolate up.

56. Mary and John are/*is happy.
57. The table and chair are/is cheap.

3.3 Person

In coordinate NPs consisting of NPs of differing person, one feature wins out over the others in percolating up. Thus, the 1st person percolates rather than the second, the second rather than the third, as (58) to (62) show (cf. Forchheimer 1953; McCawley 1968; Corbett 1979; 1983):

58. You and I like our work.
59. You and John like your work.
60. John and Harry like their work.
61. Du und ich haben uns gefreut,
'You and I have us enjoyed'.
62. Jij en ik hebben ons zorgen gemaakt,
'You and I have us worries made'.

Sentences (58) to (62) indicate the consequences of person percolation for anaphora. The impact on agreement can be seen in (36) and (37) above, repeated here as (63) and (64):

63. Shakespeare, *As You Like It* I. 3. 99 (Franz 1909: 568)
the love Which teacheth thee that thou and I am one.
64. Milton, *PL* 10, 815 (Mätzner 1864: 155)
Both death and I am found eternal.

As mentioned earlier, relying on the person hierarchy to check agreement may not be the correct account because it does not happen in all languages and because it does not apply in (44) above. The person hierarchy is not relevant for the checking of English Case (or any other discussed in this paper)[5]. This is shown by a nominative where the unprivileged position is occupied by a first person pronoun and where the Case is the right Case and the Case on the privileged position is the incorrect one. Sentence (19) above is such an instance, repeated as (65). Another would be (66) where the unprivileged second NP would show the correct Case because it is first person. This sentence is also ungrammatical and proves that the person hierarchy is not relevant:

65. *Him and I left.
66. *That is between he and me.

Thus, the person hierarchy does not apply to Case in English.

In conclusion to section 3, I have indicated that a number of features of coordinates do percolate and others do not: Negation does whereas gender and number only do if in an animate NP. Person does so in a limited way.

4 Structural ambiguity: *and*, *with* and broken conjuncts

A fourth reason for a 'breakdown' in agreement is that conjunctions and prepositions are not always clearly distinguished. In this section, as in the previous one, I will mainly focus on agreement rather than on Case, even though I briefly discuss the latter towards the end.

And in modern English obligatorily triggers plural on the Verb as the ungrammaticality of (67) shows, but this is not the case in (68) and (69) (cf. Spekker 1881; Bauch 1912). *With* as in (70) to (73) is ambiguous between a Preposition in (70) and (74) and a Conjunction in (71) and (72). Both *and* and *with* are used as subordinating conjunctions in (75) and (76), indicating that they are not just coordinating conjunctions and prepositions respectively:

67. *John and his problems is leaving.
68. *Meters of Boethius* 20, 98 (Visser 80)
Forðæm leaf and gærs bræd geond Bretene, Bloweð and groweð,
'Therefore foliage and grass extended throughout B., blows and grows'.

69. *Henry V*, I, ii, 118
    The blood and courage that renowned them, runs in your veins.
70. *Macbeth*, IV, 3, 135
    Old Siward, with ten thousand warlike men,
    Already at a point, was setting forth.
71. *Paston Letters* II 412 Carstensen (1959: 83-4)
    the Bysheop of Ely with othyr Bysheops ar in Seynt Marteyns.
72. E. Gibbon's *Decline and Fall*, W L I 385 (Karpf 1922)
    Young Numerian, with his absent brother, Carinus, were unanimously acknowledged as Roman emperors.
73. Emma with some friends is/are going to the moon.
74. Emma is/*are going to the moon with some friends.
75. With John having left, everyone started to gossip about him.
76. I'll try and go to the meeting.

This same ambiguity exists in French where both singular Verbs as in (77) and plural ones as in (78) are correct. In Dutch, the equivalent of *with* in (79) does not trigger plural unlike *en* in (80). Hence, *met* is a preposition. Swedish does not have verbal agreement but has anaphors that only refer to the subject, namely *sin*. In (81), the second conjunct cannot refer back to the subject since it is part of the subject whereas in (82) the object of *med* can. Thus, like Dutch, in Swedish, *med* is a clear preposition whereas *och* is a coordinating conjunction:

77. Le général avec ses officiers attendait le passage de l'empereur,
    'The general with his officers waited-SG for the emperor's passage'.
78. Le pêcheur avec sa femme réparaient les filets,
    'The angler with his wife repaired-PL the nets'.
    (cf. Nyrop 1917; Høybye 1944)
79. ... dat Madeleine met Freek hier vaak komt/*komen,
    'that Madeleine with Freek here often comes/come'.
80. ... dat Madeleine en Freek hier vaak *komt/komen.
81. *Min syster och sin vän ...
    'My sister and her friend'
82. Min syster med sin vän ...
    'My sister with her friend'. (cf. Wessén 1968)

English *after* also is either a preposition (with singular agreement) or a conjunction (with plural agreement):

83. One after the other have/has stopped smoking.
84. Shop after shop are/is having sales. (cf. Høybye, p. 239)

In this section, I have mainly concentrated on agreement. Case can be examined in constructions with *with* as in (85) and (86):

85. *You with he may go to Mexico.
86. You with him may go to Mexico.

Even though *with* is ambiguous in category as shown by the agreement in (73), (85) and (86) show that the Case marking of *with* remains that of a preposition. Hence, in the grammaticalization from preposition to conjunction, *with* goes through stages: (a) it projects plurality as in (73); (b) it ceases to be associated with objective Case. The latter stage has not been reached in modern English as (85) shows.

In this section, I have discussed a number of constructions where the ambiguity of the conjoining element results in apparent 'breakdown' of agreement.

5 Conclusion

In the case of checking N-features, i.e. Case, an NP that occupies a particular structural position in the coordinate will, for instance, in English and Urdu, be correctly Case marked. NPs in other positions need not be. In English, an incomplete marking occurs especially in VS structures. (Urdu does not have those). The person hierarchy is not relevant in determining the Case on the NP.

The V-features, i.e. agreement, in Welsh and Urdu are checked in a similar way. In modern English, these features do not display any interesting 'aberations', but in older versions of English it is unclear how V-features are checked. It may be that a person hierarchy is involved but it that is correct one would need to explain why the checking of V- and N-features would be so different. Sentence (44) above, repeated as (87), is worth coming back to since it presents the main problem. The Verb precedes the subject and indeed the first NP, *the devil*, in the coordinate is in a privileged position with respect to agreement and the Case on the second NP is the 'incorrect' one, *thee* instead of *thou*. Sentence (87), however, violates the person hierarchy discussed in 3.3. It could also be the case that *and* is a preposition. This leaves open too many possibilities and that is a problem:

87. Shak. *I Henry IV*, I, ii, 115
how agrees the devil and thee about thy soul.

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Notes

1. There is a set of expressions where the first conjunct of a subject is incorrectly Case marked. These are of the form *Me and my X, Him and his X,* but not *Him and my X.*

2. Parker et al. (1988:221) say this is grammatical. The native speakers I have consulted do not agree.

3. Sentence (22) is referred to in Davison (1988) and I would like to thank Miriam Butt for help with constructing (26) and (27).

4. It seems as if, in earlier English, the V-features are checked by the NP from the coordinate which is the closest to the Verb. This is hard to formalize, especially since we have no intuitions about that stage of the language.

5. Asking informants about sentences such as (10) and (11) above, it was mentioned that *me and him* in subject position, even though it is ungrammatical, is "perhaps better than *him and me*". If this is indeed the case, the first person would be the first to be changed.

III

DISCOURSE ANALYSIS AND INTERPERSONAL COMMUNICATION

QUOTATION FORMULAS OF SAN MIGUEL EL GRANDE MIXTEC: THEIR STRUCTURE, DISTRIBUTION AND FUNCTION

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0. Introduction

Direct quotations (DQ) are used extensively in all varieties of San Miguel el Grande Mixtec (SMM) discourse. This paper is primarily concerned with the structure, distribution, and function of quotation formulas (QF) that, with very rare exceptions, accompany the direct quotation (DQ). Our data base includes some 126 DQs which have been taken from a wide range of discourse types and from various Mixtec speakers, so that we judge that the percentage of QF features given here, probably reflects the language in general. However, many more DQs have been checked for specific features. All of the conversations that we have noted involve only two conversants, although a group of people may act as a single conversant.

1. Norm of DQ Is Both Preceded and Followed by QFs (preQF, postQF)

The norm of DQs, with their quotation formulas, comprise 63% of the data base (probably the actual percentage is considerably higher, because we were interested in identifying divergence from the norm). 27% of QFs identify both the speaker and the addressee. Seldom are participants introduced to the discourse in either the QFs or the DQs. Only three participants are introduced as speaker, six as addressee in a QF, and 17 in a DQ. Also many QFs, particularly one of the QFs when both occur, are not necessary to identify either the speaker or the addressee, hence their occurrence-nonoccurrence has additional function.

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An example of the norm is seen in Example 1 which is the first sentence of a procedural text. The quotation is both preceded and followed by a quotation formula, each identifying both the speaker and the addressee. In this example the formulas introduce (very uncharaateristically, as noted above) two of the four most important participants of the text: the young man looking for a wife, and his father. The quotation, itself, introduces the third important participant: the young woman whom the young man wants for a wife.

(1) Te * cáhān máá-i jíín* táā -i: Vina te quihīn-ní
and CNT speak that.one-3I with father-3I today and goINC -2F
ndahū jahā* súchí* səhə-ún, chi * játahān inī
courtship.errand for child female-that.one, because CNT be.pleased.with inside-
-ná-i cuu-ña* ña* -səhə-ná-i, * áchí-i jíín* táā-i.
1F-3I beINC-3FFe woman-female-1F-3I, CNT say -3I with father-3I.
And **the boy says to his father,** "Go now on a courtship errand for a certain girl because I want her to be my wife," **he says to his father.**

Another example of the SMMixtec norm includes one of the most complex examples of a QF, and it is the preQF in Example 2. The DQ is one of the longer ones in our data base and is the nucleus of the narrative problem/ inciting incident, so a complex QF may tend to introduce an important part of a discourse.

(2) Te nì cachì-de jíín cháa Soria-ún, nù* ní na-
and CMP say -3FM with man Soria-that.one, when CMP REP-
quihin-de ichi vai-ndii -de. Te yúan * cúu nù* ní cachì
go -3FM road comeINC-return-3FM. and then CNT be when CMP say
suu gobernador, "yáha * íó . . . -de," nì cachì chàa * cúu
? governor here CNT be . . . -3FM CMP say man CNT be
gobernador əən jíín-de.
governor ? with-3FM
And he said to that Mr. Soria when he was ready to return. And then it was that Mr. Governor said, "Here is . . . him," **that man who is the Governor said to him.**

The speech verbs occurring in the data base are:
cachī/achī/áchí/áá 'to say' (the verb in each QF above, except the first

QF of Example 1), **cahān/cáhān** 'to speak' (in the first QF of Example 1) and **squéyuhu** 'to question,' cf, Example 3. The first verb meaning, 'to say', is the most frequently occurring verb in QFs. The data base includes some 185 examples, however that verb rarely occurs elsewhere. The second verb, 'to speak' is used only 14 times and only in the preQF, however it occurs also in other contexts. Of the verb meaning 'to question' there is only one example; it occurs in a preQF. The first two verbs require for the addressee a type of association prepositional phrase marked with **jíín/jíni** 'with', whereas the verb meaning 'to question' requires an NP for the addressee.

(3) . . . nī ca-squéyuhu-de sēhe -de-ún ji*
CNP PL-question -3FM offspring-3fm-that.one with
-náhan-i: "Ijā . . . ," * áchí-de jíín*-i.
-group -3FM Daughter . . . CNT say -3FM with -3I
They questioned those children of theirs, "Daughter . . .," **they say to them.**

2. DQs With No QFs

In the more than 50 some discourses, we have found only one conversation with no QFs at all. It occurs at the nucleus of the story of a Spanish speaker speaking Mixtec. He pronounces each phonological word with a high (´) low (¯) tone sequence, thus not saying, at all, what he thinks he is saying. The Mixtecs answer him according to what he actually has said rather than what he thinks he has said. Mixtecs enjoy, immensely, this kind of tone pun play. There are 6 exchanges, first the Spanish speaker asks a question to which the Mixtecs reply. There are 12 quotations (DQ) only the first of which has a QF , a preQF.

This change from reported speech to drama (without any QFs) is a common feature in a number of languages. This is true for the Waorani story "The Jaguar and the Turtle" as told by Giketa, sentences 34-43 pp.107-113 in Pike and Saint, 1988. The vividness of drama at the climax or at the denouement of a story is used in many languages, cf. Longacre. 1983 and 1994.

3. DQs With No PreQFs

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DQs with no preQF comprise 26% of the data base. With only three exceptions, each has a very close-knit relation with the preceding DQ, following it immediately (cf. Example 12), or following that DQ's postQF. They are either 1) standard greetings or politeness forms, or more freqently, 2) assent answer to an immediately preceding proposal or question. Example 4 gives standard greetings (without preQFs): first the father is greeted, then the mother.

(4) Ø Tā ní táā, * **áchí-de**. Ø Tā ní náā * **áchí-de**.
Ø blessing 2F father CNT say- 3FM Ø blessing 2F madam CNT say-3FM
Ø "Good day, Sir," **he says.** **Ø** "Good day, Madam," **he says.**

Example 5 illustrates the majority of DQs which do not have a preQF and thus follow immediately the postQF of the preceding DQ.. These never initiate a conversation--they only respond to a proposal or to a question and that normally by assent. This type of relationship has been described for Totonac in Mexico as a dominance factor, cf. Reid 1879, p. 310ff; the DQ of the nondominant conversant does not have a preQF. An instance of this is Example 5--a response to a proposal to which the responder agrees.

(5) Ø Cuu nú cuu núsáá vii, * **áchí əngā-de**.
Ø beINC if beINC in.that.case indeed CNT say another-3FM
Ø "So be it then, indeed," **says the other man.**

There are, however, some counter examples to an agreement response. Example 6 is the angry response of a woman to an offensive accusation by a frog. Note that this DQ is also preceded by the normal paragraph marker **yúan-na te** 'thereupon', hence does not have a close-knit relation to the preceding DQ, even though it has no preQF.

(6) Yúan-na te, **Ø** Jā* ñāá*, nā quətə*-ní * cúu-ró*.
there-just and Ø that stupid what animal just CNT be-2I
Najā * sá súan * cáhān-rō* jíín*-rí, * **áchí-ña***.
why CNT do thus CNT speak -2I with -1I CNT say -3FFe
Thereupon, **Ø** "You fool, what kind of an animal are you? Why do you do thus, speaking to me like that?" **she says.**

Consider another example that doesn't seem to follow the dominence-nondominence relationship in which there is no preQF. It is the father, who is very much in charge of the situation, asking of the young man, wanting to marry his daughter, how serious he is about marriage responsibilities. However, this may be related to the difference between thematicity and dominence that Reid notes in Totonac. The participants who are the theme, in this case the young people, contrast with the dominant person who is the father, cf. Example 7.

(7) . . .te cuāha Dios tundóho nuū*-ná, * **áchí sūchí**
and giveINC God trouble face -1F CNT say offspring
sə́hə́-ún. **Ø** Búenū, te róó*, sūchí yíí, ndasa . . ., * **áchí-de.**
female- that.one Ø good and 2I offspring male how . . . CNT say -3FM
". . . and God give us trouble," **says that girl**. **Ø** "Good, and you, young man, what . . .?," **he** (girl's father) **says**.

Note that this sequence exemplifies the agreement response of the father to his daughter's statement. Then without a midQF, as discussed in Section 4 below, he addresses the young man, thus the single speech is acturally two units: 1) an agreement with one person follwed by 2) a question, initiating a new exchange with a second person. The lack of a preQF in the father's speech follows the norm of agreement with the preceding speaker, but we would guess that it is not as nondominant as is the case with most such agreement statements. We would guess that both intonation and body gesture would support this hypothesis.

Another unanswered question concerning DQs with no preQF is the difference between their postQFs which identify only the speaker (9 examples) and those that identify both the speaker and the addressee (12 examples). Both types follow greeting forms, paragraph or sentence markers, as well as the very close-knit relation to the preceding DQ as mentioned above for the majority of DQs without a preQF.

4. DQs With a MidQF

4. There are 11 examples (9%) of a QF within a speech of a single person (midQF). 10 of these have no preQFas described above, but one of them does have a preQF and is illustrated in Example 10. The 10 without a preQF begin by responding to a preceding DQ which is the part before the midQF. The part that follows the midQF is a proposal or a rhetorical question directed toward the other participant in the dialogue. Thus the one speech is actually two conversational units/utterances--the first part closing an exchange and the last part opening the next exchange; cf. Example 8.

(8) **Ø** cuu núsáá, **nī cachī sutū-ún,** co nú nī nihīn-rō*,
Ø beINC in.that.case CMP say priest-that.one but if CMP get -2I
te cachī-rō* . . ., **nī cachī sutū-ún jíín sacristan.**
and sayIMP-2I . . ., CMP say priest-that.one with sexton
Ø So be it then, **said that priest,** "But if you get it, then tell. . .," **said that priest to the sexton.**

Several examples have, just before the midQF, simply the response **bueno/buénū** 'all right,' hence follow the pattern of two conversational units in the single speech of an individual.

(9) **Ø** buénū **nī cachī** Governardor, te nú túu * jiní
Ø good CMP say governor and if NEG CNT have.knowledge.of
-rō* . . . cachī-rī nuu*-rō* . . .**nī cachī chā * cúu Gobernador**
-2I . . . sayINC -1I face -1I . . . CMP say man CNT be governor
José Inéz Dávila jíín* cháa * cúu Terezo-uń
Joseph Inez Dávila with man CNT be Terezo -that.one
Ø "All right," **said the Governor**, "If you don't know . . .I'll tellyou . . .," **said the Governor Joseph Inez Davila to that man Terezo.**

However, there are other examples of **bueno** not separated from the rest of the DQ by a midQF. However, they do have a preQF, thus contrasting with those above which don't have a preQF, cf. Example 9. Because of this we suggest that the dominence factor is very much lessened or non-existent with these, and that it would be better to consider the **bueno** to be a margin in a single DQ unit. In Example 10 the speaker is very angry with the addressee, but is willing to grant a very minor point, while continuing with much more damageing evidence against the addressee, and so is quite dominant over the addressee.

(10) Te * cachī chāa * cúu Rafael-ún jíín cháa * cúu
and CNT say man CNT be Rafael -that.one with man CNT be
Soria-ún, Buenu Ø nasū* násu* níí ní sáha, co . . .
Soria -that.one good Ø incorrect incorrect just.that CMP do but . . .
nī cachī-de jíín cháa * cúu Soria-ún.
CMP say -3FM with man CNT be Soria -that.one
And **that man who is Rafael said to that man who is Soria**, " OK, OK, **Ø** so you just didn't do it, but . . .," **he said to that man who is Soria.**

Note that there is no midQF (**Ø**) following **buenu** 'OK, OK.'

The one example, mentioned above, of a DQ with a midQF but also with a preQF, is just one unit rather than two. It is introduced by the paragraph marker **yúan-na te** 'thereupon' hence is the beginning of a new paragraph, and thus is grammatically very separate from the preceding DQ. The part following the preQF and preceding the midQF is simply Direct Address (DA), not a response form, but a margin in the entire speech which is an initiating DQ , making a proposal to the addressee, cf. Example 11.

(11) Yúan-na te nī cachī chāa cúxí, Tijíī, * áchí-de, . . .
there -just and CMP say man lazy vulture CNT say -3F . . .
cuāha núu . . ., * áchí chāa yúan jíni təjiī.
giveIMP temorarily . . .**CMP say man there with vulture.**
Thereupon, **the lazy man said,** "Vulture," **he says,**" . . . give temorarily . . .," **said that man to the vulture.**

We would suggest that these examples in Section 4 present something of a cline of dominance vs. nondominance and close-knitedness vs. normal grammatical relatedness--the cline as from Example 8 to Example 10.

5. DQs With No PostQF

The post QF seems to be more tightly a part of the DQ than the preQF in that there are 97% of DQs with a postQF--only 3% without one. Two DQs without a postQF are questions and are followed immediately by a DQ as answer which does not have a preQF, so that the question is followed directly by the answer--a closer relation than any other exchanges in the data base, cf. Example 12.

(12) Te * **áchí váhū jíni-tī**: Nāún sa -ró* cándee -ró*
and CNT say coyote with -3AN what doCNT/INC-2I be.present CNT/INC-2I
yáha **0**. **0** Yáha -ni * ísəquə -ná, tíū, * **áchí-tā**.
here 0 0 here-just CNT play 1F uncle CNT say 3AN
And **the coyote says to him**, "What are you doing here?" **0**. **0** "Just here I'm playing, Uncle," **he says.**

The other two DQs with no postQF, in contrast to the two mentioned above, are significantly distanced from the response which follows. One is followed by the paragraph marker **yúanna te** 'thereupon' , and the other by the sentence marker **te** 'and' followed by a fronted speaker, a feature which is very infrequent, cf. Example 13.

(13) Te **nī cahān máá* jáco jíín*-tá**: Cunu xōo-ró*,
and cnt CMP speak just.that.one wolf with 3AN weaveIMP skirt-2I
vílō **0**. Te **máá* -tá * áchí-tā***: Yuchaān . . .
lizard 0 and just.that.one 3An CNT say -3AN tomorrow
And **those wolves said to them,** "Weave skirts, lizards." **0** And **those animals, they say,** "Tomorrow . . .

6. Conclusions

This study of QFs that accompany DQs in various genres of discourse in San Miguel Mixtec shows that

1. 63% of DQs are preceded and followed by a QF.
2. Certainly one of the QFs of each DQ is not needed to identify the speaker and addressee, therefore, other functions are operative.
3. A nuclear element in a discourse can be marked by an exchange between two conversants without any QFs at all. There is only one example of this in our data base.
4. Acquiescence or standard greeting or courtesy DQs are marked by no preQF. 26% of DQs have no preQF.
5. A single speech of an individual may be actually two conversation units, marked by a midQF between the two units. The part preceding the midQF is a response to the preceding DQ

and the part after the midQF initiates a new exchange. 9% of DQs have a midQF.

6. The postQF seems to be a more intregal part of the DQ than other QFs in that 97% have a postQF.

7. Additional Study Topics

There are many more questions to be raised, particularly the relevance of the non-inclusion in the QFs of the speaker or the addressee. Since 27% of QFs include both, that leaves 73% of DQs for the study of the function of the varied distribution of the speaker and addressee. See the accompanying chart for some distributional featues of speaker-address identification in QFs:

Percentages of speaker (sp) and addressee (ad) identification in pre and post QF:

	PreQF	PostQF
sp & ad in both	27%	
sp & ad	18% + 27% =45%	25% + 27% =52%
only sp (no ad)	23%	9%
only ad (no sp)	2%	7%

Other distributional features:
If only sp in preQF, then both sp and ad in postQF.
If only sp in postQF, both sp and ad in preQF.
If only ad in preQF, then only ad in postQF.
If only ad in postQF then in preQF there are 4 with sp and ad; 2 with only ad; 1 with only sp; 1 with neither.

Also the significance of the use of NP versus Pronoun in the QFs needs to be studied. The very few participants who are introduced in the QFs are, all but one, identified by NP.

Longacre, 1994 states that "The claim made here that mention/non-mention of speech act participants--over and beyond the textual needs of participant identification and tracking--is indexical of the intensity of participant interaction in dialogue." Some of these are degree of confrontation, degree of prominence or highlighting of speaker or addressee, differences according to genre discourse types. Each of these and other features need to be examined in future studies.

Abbreviations

- = precedes an enclitic allomorph or follows a prefix
1,2,3 = first, second, third persons
AN = animal
CMP = completive aspect
CNT = continuative aspect
CNT/INC = ambiguity as to those aspects
DQ = direct quotation
Fe = female
F = formal
I = informal
? = unknown (as gloss)
IMP = imparative
* = continuative aspect morpheme
INC = incompletive aspect
M = male
morpheme* = changes the tone of the following word if it can be changed
NEG = negative
Ø = no quotation formula
PL = plural
postQF = QF following a DQ
preQF = QF preceding a DQ
QF = quotation formula
REP = repetition
v́ = high tone
v̄ = low tone

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DISCOURSE STRUCTURE AND COMMUNICATIVE POWER

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For the past several years I have been using the descriptive methodology called 'phasal analysis' to shed light on the complex polyregister of language known as casual conversation. In the early eighties Michael Gregory and I noticed that, in our analyses of both literary and non-literary discourse, there were passages of tri-functional consistency we called 'phases' (1981) (cf. Halliday's functions of language 1973). Somewhat later as I worked on extended discourses, I discovered that in some texts successive phases were not completely isolated and discrete, but formed continuously evolving phasal strings where the phases were somehow related to each other. Often these continuous phasal strings gave the discourse a beginning, middle and end structure too. In other extended conversations, a phase might disappear only to resurface later in the discourse forming a discontinuous phasal string. Interestingly, the type of phasal 'structuring' manifested seemed to correspond to the interlocutor's interpersonal relations. Continuous phasal strings 'structured' the discourse of interactants who had not shared prior experiences ('strangers') and who needed as much decoding support as possible. Whereas, discontinuous phasal strings described the structure of friends' discourse, reflecting perhaps the greater linguistic risks available to those who had shared discourse before and likely would again.

In this paper I will discuss a conversation I recorded between two young women, Susan and Sherri, whom I selected from different university courses as potential 'strangers'. Their exchange particularly interests me because the interpersonal relationship between the two changed radically during the actual conversation as the women realized they knew the same person: Theresa. The complete analysis of the talk is lengthy, so allow me merely to sketch some of the more interesting results which emerged.

The first several phases described the women's attempts to establish a relationship. They began by identifying themselves and justifying their inclusion in the project. In phase one of the analysis they classified themselves by their year of study. Sherri began "Yer a first year second year student?". Susan responded "No, I'm actually a first year student. I'm actually I'm in rhetoric that's how she's my prof what are you taking?". She continued the classificatory self-identification and then justified her inclusion in the project vaguely by revealing the relationship with 'her prof'. The rest of the phase was defined by a continuation of 'course' lexis, a variety in mood and cohesive device, and descriptively-inclined relational processes in the present tense. "I dropped her class" introducing past action acted as a transition-out of phase one.

Phase two, initiated by Susan in a transition-in "she called you anyways" indirectly invited Sherri to explain her inclusion in the project, which she did in a humourous fashion "I was in the office ... and she grabbed me ... and said someone didn't show up so could you, would you mind?". Experientially, this was quite different from phase one: narrative action replaced description, a third person was the agent, new circumstances were introduced: 'in the office' and 'in the middle of house managing the last fourth year acting show right now', and the lexis included 'show' items. The mood choices remained varied as Susan often anticipated Sherri's actions in declaratives and interrogatives: "she called you anyways ... she grabbed you ... and said could you help us?" Additive conjunctions loosely connected the telling of this story.

After a momentary return to phase one choices with "are you yer fourth year?", Sherri took a decisive step in reducing the interpersonal distance between the two by introducing a more personal topic: one removed from the shared university context "But I just moved in September from Montreal". Although the tri-functional choices made in this proposition were not developed, they introduced a new combination of tri-functional choices which were related, so I called it a transition-in to phase three. At a greater degree of delicacy I differentiated the phase into two secondary phases. The first returned to a description of Sherri's feelings concerning her move. To Susan's "How do you like it?", Sherri responded "It's not bad... I'm happy here... It's a little strange ... it's really neat". Susan then redirected the discourse with her question "Do you speak French?". The linguistic patterns shifted slightly as a consequence, so I described this passage as secondary phase two. As Sherri spoke about her difficulties in maintaining her fluency in French, she introduced a new participant who changed the course of the discourse to follow "I still have to call Montreal periodically to do business or to or you know to clear things up and I find my French is not as good as it was when I was there ...but there are a couple of people... who are Kemlin Hemlark".

This name set up a series of recognitions that had considerable impact on the conversation. Susan responded "it's my sister's um best friend", then Sherri "Yer Theresa's [sister]?", and shortly thereafter Susan asked "You know Theresa?" to which Sherri responded "very very well". A rather cryptic elliptical phase to the analyst, but one that posed little interpretive problem to the women. In the discourse following the relationship was clarified: Theresa was Susan's sister, and Sherri's friend. This recognition changed the discourse considerably: the women had now discovered that they shared much more than a rather removed university experience: they shared 'Theresa', and more importantly Theresa's history. Or did they? The discourse that follows certainly impiies that they thought they did.

In the tri-functional character of phase five, the recognition initiated in phase four was further developed by Sherri clarifying her relationship with Susan's sister "we go out a lot actually" in a transition-in to the phase. Following this action introduction Sherri reminded Susan of an incident where they actually spoke to one another on the phone "remember she [Theresa] called home and left this message ... like when your mom was away ... and she [Theresa] said and Sherri's going to say hi". Susan responded "Oh that was you...oh wild". The phase ended in a transition-out as Sherri returned to the action frame of the transition-in "we were on our way out for coffee". As in other analyses it appears that transitions are often codally somewhat different from the phase proper, but they do introduce, or complete, the changes which the phase develops, or has developed (cf. Malcolm 1991).

The women's process of recognition described in phases four and five continued in the discourse described as phase six. Sherri's reminder of the phone call ended, and was replaced by a comparison/contrast phase introduced by Susan "Well you certainly wouldn't guess us as being sisters eh?". This was a mutually developed phase as Susan continued her questioning with "maybe there is like we have sort of I don't know maybe the same eyes or something I don't know" Through the numerous dubious speaker's attitudes, negatives, and hesitation links, a new lexis of 'appearance' appeared. Sherri denied Susan's hypothesis "Your face is not like hers", but continued more affably "But you've got the same mannerisms", and later "you talk the same". It's interesting, that she dropped the predictable visual comparsion so quickly, before briefly touching on the more abstract 'mannerism' possibility, and finally returning to the language 'talk/call' lexis that characterized the bilingual secondary phase of phase three, and the 'calling' anecdote of phase five. Susan ended phase six with "I know we have the same voice because people get us mixed up all the time when we're on the phone wow that's kinda neat", seemingly satisfied by this sibling similarity. Sherri then returned to the bilingual experience in which she was interrupted some time earlier, before the mutual acquaintance revelation. Finally, the relationship between 'speaking French' and 'Kemlin' was explained "yeah so Kemlin and I this is Kemlin and I speak French all the time together." This concluded her discussion of her linguistic dilemma, and the brief return to phase three dissolved in a series of evaluative fillers "oh really... yeah... great great... which is good".

With the demise of the return to phase three, Susan took a major step beyond the constraints of the identificatory and justicatory phases: one to three, and the recognition phases: three to six. She said "I heard something about they had just the stupidest joke on um were you listening to the radio CKUW just just before you came in here at all?" Up until this point in the conversation each phase described passages of discourse involving less than ten turns in length with quite simple syntax: single propositions with little embedding. Although there were a variety of semological predications used, the overall effect was more descriptive and relational than narrative and active (cf. Malcolm 1987 for a discussion of description and narration). The participants were predominantly Sherri and Susan, and minorly 'she' [Susan's prof], and Theresa. With turn #77, and Susan's introduction of a joke she heard on the radio, everything changed. Phase seven was the first of three large phases, each related in twenty to forty turns, revolving around election gossip concerning Theresa and Kemlin. In these phases there was more action than before; there were more participants involved in more situations, and the syntax was more complex. The three phases of this middle section of the conversation included almost the same number of turns as the introductory six.

Phases seven and eight, the larger of the three, both involved several secondary phases which described the shifts in tri-functional consistency that evolved throughout the phase. Phase seven focused on the joke Susan heard on the radio about "Kemlin wrestling a pigeon in the back of McDonalds". In the phase overall, there were more incomplete propositions uttered than before, and a greater variety of cohesive device including demonstrative and extended personal reference as well as a great deal of lexical repetition. The 'joke' lexis coloured the entire passage, and the participants were consistent throughout.

In secondary phase one there was little evaluation other than Susan's "It was so dumb", although there was some concern about Kemlin's reaction: "She's probably not too impressed" by Susan, followed by "she's gonna flip" by Sherri. In secondary phase two there was a repeated focus on 'remembering' as Sherri asked "Do you remember what it was", and later "D'y remem' You don't know who was on the radio eh?". Susan basically opted out "No I can't remember ... I was trying to do trying to write a paper and that's how I wound up hearing all this". Secondary phase three was experientially weak: only three of the seven turns actually included a complete proposition, and not a mere 'okay, yeah, wow, really?'. And there was a shift from the victim of the joke to Sherri's reaction to it "she's been taking some really serious cracks lately", and "I'm starting to get a little pissed off about it".

Secondary phase four continued with Sherri's reactions, but in greater detail "that's really weird", "I'm surprised", "it was probably all in good fun", and "she'll probably just blow it off". In addition it developed Susan's avoidance tactic, and introduced an election time frame "I've just been coming here going to my classes and going home so like this was the first time out of ever since this whole election thing that I've just sat and listened". In this secondary phase the mysterious context of the joke was finally revealed by Sherri, although incompletely "no it was probably a crack I mean she's a full blown vegetarian and even mention of her and a and McDonalds in the same sentence". The final secondary phase of phase seven, number five was experientially as weak as secondary phase three with numerous non-propositional fillers, and the experiences that were developed were not new "I know it was wrestling a pigeon", "wrestling a pigeon", "wrestling a pigeon".

Turn #112 by Sherri operated as a conclusive transition-out of phase seven "they've got to be careful about what's being said over the air at this point". And as it continued, it acted as a transition-in to phase eight "because of the implications of everything that's been happening and especially with the elections and like Jeff Waldman or as we called it the Waldman Affair". Phase eight, then, told the story of the Waldman Affair. It too was lengthy, some thirty turns, and was described in a number of secondary phases. But what was perhaps most notable of phase eight was the shift in power between the interlocutors. Although Susan was the one who had actually heard the wrestling joke, and this would seem to give her a certain amount of power as 'knower', Sherri stayed very active throughout phase seven seeming to have a greater knowledge of the relevant background to the joke than Susan, and hence a greater reaction to it. Perhaps based on the success of this mutually sustained phase, the two begin phase eight in much the same vein. However, from the beginning Susan had difficulty maintaining communicative power, because it seemed she lacked information. And it would appear that she attempted to disguise this fact in the first secondary phase of phase eight by the linguistic choices she made.

1 Susan - Why? [must they be careful]
2 Sherri - because of the letter
3 Susan - oh yeah he wrote that letter
4 Sherri - no nnno there was a letter
5 Susan - there was a letter written about him?
6 Sherri - so like all that it's just been blowing
since we finally got it settled with the
board a little while ago
7 Susan - and what was that letter about? they wrote
that letter about him and there were all
sorts of implications that weren't right
that weren't true?
8 Sherri- that weren't true they were unsubstantiated
9 Susan - 'kay

As soon as Sherri mentioned 'letter' in her response (#2) to Susan's elliptical question (#1), Susan seemed to assume "oh yeah he wrote that letter", the demonstrative particularly suggesting she knew what she was talking about. But when Sherri denied this (#4), Susan speculated "there was a letter written about him". Sherri's silence and additional information may have implied an acceptance of the speculation, but her vague use of the extended 'it' did not clarify the experience Susan was trying to decode. In turn #7, Susan speculated further, and was further 'rewarded' by Sherri's repetitive agreement (#8). Her speculation enabled her to 'play along', and keep her communicative power through participation, but she still had not been given enough information to interpret Sherri's message.

In secondary phase two it became apparent that Sherri did not realize that Susan did not have a prior knowledge of the Waldman Affair which would allow her to participate more fully. Sherri did reveal the details of the affair gradually, but in an unusual order which didn't facilitate decoding: first the very vague "he was there at a certain point he was not present when security came down and caught everyone". To which Susan responded with "caught them doing what?". Sherri, then, answered with details of drugs and drinking, but still did not supply an ample context for her reply until finally she revealed "there were like twenty people down there... at different points of the evening".

In secondary phase three Susan began directly "I didn't hear anything about that", but for whatever reason, Sherri still did not seem to fully appreciate the depth of Susan's interpretative dilemma, and she confounded the situation further by introducing a second 'letter' printed in the school paper: the Uniter. By then, Sherri monopolized the discourse entirely. She even argued with herself over the issue "Like there was um was it this Uniter or the last one maybe it was the last one I don't remember anyways there was a retraction printed". Susan was reduced to "oh really". In her next turn Sherri added such a wealth of new information as to the consequences of the affair, 'UWSA, president, sues, own company', in such a convoluted sequence and complex syntax that Susan's chances of re-entering the discourse diminished considerably "it was an apology and that was good enough 'cause Jeff was going to sue the UWSA which doesn't make sense because Jeff is acting president of the UWSA. UWSA controls the Uniter so in fact he has to y'know sue his own company" (#132).

In the final secondary phase of phase eight Susan did not recover. She only added the occasional 'really, really, yeah, wow' to Sherri's paradoxical last judgement of the Waldman Affair "I bring it up and I joke about it", but later "it was very serious."

In phase nine, the conversation continued to take
a downward swing in terms of mutual participation as Susan tried to re-establish her credibility as a 'knower' of the relevant gnostology, and again, failed (cf. Malcolm 1984 concerning 'gnostology'). In turn #141, with a transition-out of phase eight and a transition-in to phase nine, she tried another tack on the school election experience "I know people were really upset about um [the Waldman Affair?], what I remember about the whole election thing was that um, people were really upset with Sony or Sawny or". Sherri corrected her pronouciation "Zony", only for Susan to get herself into more hot water with her next utterance "people were really upset with her and people were um really upset with uh the whole sort of coalition er". Sherri's query 'our coalition' undermined the credibility of everything Susan had just said, but then Sherri redirected the experience "we were called Zonites", and redeemed the situation, so to speak, by monopolizing the rest of the phase with talk about the election. Susan let Sherri dominate, with only the

occasional 'mhm, wow, really, yeah' until she added "we were definitely rooting for Kemlin at our house of course with Theresa." And so ended the longest three phases, syntactically the most complex, semologically and lexically the most varied. Had Susan remained a mutual participant in the discourse, the phases which described it may well have continued much like phase seven in degree of complexity and familiarity. However, Susan lost considerable communicative ground in phases eight and nine as she blundered along, despite Sherri's barrelling along regardless. And so the conversation returned to a 'safer' neutral zone where 'insider information' was not as crucial to interpretation.

Susan did not give up at this point, but turned to an appropriate topic, given her audience, which she knew well: Theresa's personal history, specifically as it related to Kemlin. By doing so she regained participatory momentum, and perhaps even some sort of communicative edge as she introduced an experience where she was the authority supposedly. And so began phase ten. But Sherri's ignorance of this period in her friend's history did not stop her from participating. Perhaps this is a result of Susan's actual avoidance of the historical aspect of her sister's relationship, and a focus on the friends' appearance together in secondary phase one "they're the strangest looking two people being friends", and their humourous singing in secondary phase two "they were both singing it and they had no idea what the words were so they were just going like la la la la". Sherri had experience with both, and therefore, was not excluded "it must have been a like a just a sight to see them together", and later "they'll just go bluh bluh bluh bluh". The mutuality with which both women participated in this phase, and the success of their somewhat safer, albeit less intimate, relationship heralded a major shift in the overall direction of the conversation. Phases ten to fourteen were shorter, less complex, more current, and less dependent on insider information which apparently Susan did not actually share with her sister, or Sherri.

With Sherri's subsequent introduction of a new participant in #176, a new phase described the range of linguistic variables. In phase eleven, interestingly, the interlocuters maintained a mutual relationship because neither woman was the 'knower', both speculated as to the identity of the mystery man accompanying Theresa.

> Sherri - He had a really nice shirt on that's all I
> remember it was a gorgeous shirt
> Susan - What was he tall with dark hair or dark eyes?
> Sherri - I thought he was blonde

But then Susan shifted gears somewhat "Al's definitely not blonde though I don't know but there are so many men in my sister's life God knows". Sherri ignored this, and kept to the mystery "it might have been Al though".

A moment later she used this hypothesis as a springboard into the next story and the next phase: twelve. In phase twelve Sherri told Susan about an incident involving Theresa and possibly Al. What was different about this story from those told in phase eight was that it was told in a chronological sequence geared for an 'unknowing' audience. Hence, Susan would have had no problem interpreting and enjoying the tale. As with the other stories in the discourse: action processes, time and place circumstances, declarative mood choices, and additive conjunctions predominated. Sherri began "in any case we had gone to the Spectrum [a bar] and then Theresa just kind of popped over knocking on the door at one o'clock ...", and later "it was Brad's birthday ... and then she came over and brought him a birthday present ...". Sherri also offered Susan a commentary that suggested appropriate reactions "it was great... it was hysterical ... it was really neat". Susan followed with an appropriate "she's crazy".

At this point Sherri made a brief return to the selections made in the narrative transitions-in and -out of phase five "so we did that and then I've gone out for coffee with her and we we' we've gone to the Spectrum a couple of times". That she further developed these selections suggests that I treat them as a minor discontinuous phasal string rather than a narrative frame to the earlier phase.

The final two phases returned to the present. Phase thirteen continued to focus on Theresa, more specifically on her answering machine's message. By this time it appeared that the mutuality of the interlocutors' relationship had reached the point where Susan could risk using the imperative "Phone it [the answering machine] it's the most hilarious thing ... it's crazy". Sherri answered "I'll have to remember to do that", before returning to 'the show' experience she introduced in phase two as she sought to justify her inclusion in the project. But now, she risked a personal evaluation "It's a really super show". And with this discussion still in progress, the assigned ten minutes were over, and the conversation was terminated.

Although this sketch of the women's conversation may have occasionally sounded experientially biased, allow me to remind you that phasal analysis is tri-functionally thorough, even if my reporting of it was not. What I have hoped to do was to show how the phases revealed a largely dynamic structuring of the conversation, and how the girl's interpersonal relationship shaped it, and was shaped by it.

The first six phases, encompassing roughly the first third of the conversation, in terms of number of turns throughout, was largely descriptive. In phases one and two the women identified themselves and justified their presence in terms of their immediate context: the university. In phase three Sherri added a historical dimension to her self-identification. She also introduced Kemlin, and thereby indirectly initiated the recognition phase four involving Theresa. Phases five and six enabled both women to further identify themselves each in relation to the third party they had in common: in phase five Sherri told of the phone call where she said hi to Susan, and in phase six

Susan and Sherri compared the two siblings.

Having established a shared gnostology beyond the university context, the girls were free to leave their discussion of the university, and foray into what they seemed to have considered more interesting experiential terrain, still mutually held. In the extensive phases seven, eight and nine they did just that, only to discover that their level of mutually held experiences was not as extensive as they had originally assumed. Susan did not have adequate information to participate, and made some communicative blunders resulting in Sherri monopolizing the discourse selections. With the unequal distribution of power which resulted, this level of communicative intimacy seems to have been abandoned.

In the last five phases the women seemed to adapt readily and quite effortlessly to a level of intimacy where they could maintain a more equal distribution of power and conversational control over the experiences they explored. They returned to safer topics where 'insider' information was not interpretatively necessary, where the syntax used was less complex, the sequencing was more predictable, and the phases were shorter. And once they found an appropriate interpersonal distance, it seems they had fun with it, and felt free to take risks with it. As a result, their interpersonal distance diminished as their mutual participation in the communicative event continued.

The structuring of the women's discourse reflected their interpersonal relationship quite well. They were neither complete 'strangers' nor were they established 'friends'. Phasal analysis did reveal a kind of beginning, middle, ending structure typical of the conversation of 'strangers' with the introductory phases one to six, the middle seven to nine and the ending ten to fourteen; however, there were a few instances of the discontinuous phasal strings of 'friends' too in phases one and five. Similarly, when the women attempted the extended phases, lack of sequencing, ambiguous referents, and complex syntax of friends, their communication floundered; yet when they established a less intimate relationship, their discourse flourished.

In working with this text, phasal analysis has proved a valuable tool with which to uncover the unconscious and dynamic structuring of this complex polyregister of language, and from which to discover how such structuring principles are affected by the interlocutors' interpersonal relationship.

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TOPIC MANAGEMENT STRATEGIES IN SPOKEN DISCOURSE: COGNITIVE AND SOCIAL ASPECTS OF TOPIC SHIFT IN KOREAN

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INTRODUCTION

All types of discourse have a topic, which is described as "the most frequently used, unexplained, term in the analysis of discourse" (Brown & Yule 1983:70). Researchers have considered topic as what is being talked about, and have regarded it as an interactional achievement in that speakers can negotiate and manage topic through the course of conversational exchange (Brown & Yule 1983, Maynard 1980, Schiffrin 1988, etc.). There are, however, places where a current utterance may not display a relationship to, or may not fit with, a prior one, and a class of such utterances can be considered as topic changes (Maynard 1980:263).

This paper explores topic management strategies in conversational discourse with special reference to the cognitive and social aspects of topic shift among Korean speakers. Based on conversations among members of college groups of Korean churches in suburban areas of Los Angeles and Washington, D.C., this paper focuses on three aspects of topic changes: topic management strategies with regard to the use of discourse markers and context, the introduction of prior topic, and the notion of power and solidarity (Brown & Gilman 1960, Brown & Levinson 1987, Gumperz 1982, Tannen 1990, 1993, etc.).

USE OF DISCOURSE MARKERS

Conversation achieves coherence by the use of discourse markers (Schiffrin 1987), so a speaker's use of discourse markers in topic shift, especially topic transition place, merits attention. Some discourse markers occur in a cooperative and progressive topic shift, and others in an antagonistic and digressive shift. Korean discourse markers, *kulemyen* 'so', *taumulo* 'then', and *yey* 'yeah' often occur when participants proceed cooperatively with gradual topic shifts. For example, in Excerpt 1, while talking about several ways of recruiting members for the group, participants employ these discourse markers to create the successive progression of subtopics and ideas.

[Excerpt 1][1]
(1) Hewon: *Manyak* card *ponaynta-myen, nwu-ka ponaulke-eyo?*
if send- if who-Nom. send-Q'SFM
'Who will be in charge of sending postcards?'

(2) Minho: *Mwullon nay-ka hal-keya.*
sure I- Nom do-will
'Of course, I will do it.'

(3) Hewon: *Kukess-i kacang cwungyohay.*
that- Nom. most important
'That (who will send postcards) is most important.'

(4) President: *Kulemyen* card *ponaynunkesun tonguy-toyess-ko,*
so send agreed-be - and
'So, we agree on sending postcards,'

(5) *Taumulo etten pangpepi isskeysse-yo?*
next at what methods be- SFM
'then, what about other ways to recruit members?'

(6) Hewon: *Euh... cip pangmwunhanun-kes-ettay-yo?*
house visit -thing- how- Q'SFM
'Euhh... How about visiting members' houses?'

(7) Eunju: *Yey, kukess cohun sayngkaki-eyo.*
yeah that good thought-SFM
'Yeah, that's a good idea!'

(8) Minho: *Yey, na-to tongkam-ieyo. Nwukwu cip puthe?*
yeah I-also agree-SFM whose house first
'Yeah, I agree too! Whose house will we visit first?'

The president of the group uses the discourse marker *kulemyen* in (4) to finish the talk on sending postcards to members and *taumulo* to switch subtopics. Hewon suggests visiting members' houses, which is then positively taken up by other participants. Eunju and Minho initiate their turns with an acknowledgement token, *yey* 'yeah,' and shift talk to further discussion on visiting members' houses.

In contrast, the discourse marker *ahh* 'oh' is sometimes used in an antagonistic and digressive topic transition place, in which participants attempt to change subtopics after getting attention from other conversational parties. In Excerpt 2, during the talk on the importance of store clerks being kind, Richard begins with *ahh* and attempts to shift topic.

[Excerpt 2]
(1) Jiun: *Macayo. chinceli ceyil-ieyo.*
right kindness best -SFM
'That's right. Being kind is best strategy in serving customers.'

(2)Minister: *Pwulcincelha-myen, ssako-siphun osi isseto nakapeley*
unkind -if buy -want cloth be leave
'If a clerk is unkind, customers leave the shop
even though there are clothes which they want to buy.'

(3) Richard: Ahh, Miss *Ku cepen ipun hanpok cengmal co-asse*
Oh, last wear cloth really good-PAST
'Oh, Miss Ku, you looked really great in *hanpok* last time.'

(4) *Hankwuk-eyse kacey wase? Cham co-asse.*
Korea -from bring come really good-PAST
'Did you get that from Korea? It looked really good.'

(5) Jiun: *Kulay. Imonim-i o- si- meynse kase-on-keya*
right aunt-Nom. come-H'Inf.- when bring-come-that
'That's right. My aunt brought it from Korea.'

Beginning his turn with the discourse marker *ahh* 'oh,' Richard abruptly asks Jiun about her *hanpok* (a Korean traditional dress). Richard is challenging Jiun and the minister by interrupting them and shifting topics. Jiun also briefly talks about her dress.

DEPENDENCE ON CONTEXT

Speakers also rely on immediate context in shifting topics, especially when there is a person joining in in the midst of the conversation. For example, in Excerpt 3, while participants are talking about the time for the Christmas party, Mr. Lee, the father of the member named Minho, comes into the room, and he becomes the subject of conversation.

[Excerpt 3]
(1) President: *Motwu 7- si -ka coh-ayo?*
everybody o'clock Acc. good-Q'SFM
'Do you all agree on 7 o'clock (for our Christmas party)?'
[Mr. Lee comes into the room.]

(2) Mr. Lee: *Minho-ya, ne encay moim machi- ni?*
you when meeting finish-Q'SFM
'Minho, when will you finish this meeting?'

(3) President: *Annyenghaseyo? Kakey naysstako tul-ess-eyo.*
How are you? store open hear-PAST-SFM
'How are you, Mr. Lee? I heard that you opened a store?'

(4) Mr. Lee: *Cokumahan kakwucem -iya.*
small furniture store -SFM
'It's just a small furniture store.'

(5) Minho: *Euahh, yak han -sikan toyl -ke -eyo.*
about one-hour will- maybe-SFM
'Euahh, probably in an hour.'

(6) Chunho: *Euhh.. Cehitul khun table philyohay-yo*
we big table need- SFM
'Euhh.. We need a big table.'

(7) Jisun: *Kicungha- si - cyo?*
donate -H'INF-Q'SFM
'Would you donate a big table to our group?'

(8) Mr. Lee: *Kulssey, sayngkakhay- poci. Mr. Kim-wa yaykihako issulkey.*
well think about- see with speak will wait
'Well, I will think about it. I'll wait outside and talk with Mr. Kim.' [Mr. Lee leaves the room.]

The president of the group asks Mr. Lee about his store in (3), and Chunho and Jisun talk about the furniture. After Mr. Lee leaves the room, participants return to talk about the Christmas party.

Topic shift also reflects the immediate context, especially when there is a series of silences resulting from the failed transition of speakership, as demonstrated in Excerpts 4 and 8 (Marynard 1980, Song 1993, 1994a, etc.). In Excerpt 4, while waiting for other members to arrive, participants talk about Korean-American children's language use.

[Excerpt 4]
(1) Richard: *Han* sentence-*lul po-myen, seynalamal- iss-eyo.*
one Acc. see if three languages is SFM
'Korean-American children can use three languages in a sentence.'

(2) *Yenge hayssta, hankwuke hassta, tto* Spanish-*hay-yo.*
English speak Korean speak also speak-SFM
'They speak English, Korean, and Spanish.' [silence: 3.5]

(3) Jiun: Euhh.... *Hyung-Kon-i kitalinun ke- eyyo?*
Acc. wait for do-SFM
'Euhh... Are we waiting for Hyung-Kon?'

(4) Minister: *Ani*, Howard-*ka onta -ko haysse.*
No, Nom. come-that did
'No, (We're waiting for) Howard because he said he'll come.'

(5) Jiun: *Myech-si-ey ontey-yo?*
what-time-at come- Q'SFM
'Did he say what time he would come?'

Richard's talk is followed by a series of silences. Jiun thus initiates a talk about absent members, which is continued for a while. The talk about the absent members is subtopic shift.

REINTRODUCTION OF PRIOR TOPICS

Participants in conversation not only introduce new topics, but also reintroduce prior topics for various reasons (Sirois & Dorval 1988, etc.). First, speakers reintroduce, or more specifically restate, the prior topic briefly to remind other participants of the issues discussed earlier and to initiate more discussion on these. In Excerpt 5, after finishing a discussion on various group activities and suggestions for changes, the president attempts to shift to another topic and he is immediately interrupted by Sungjin, who introduces a different topic, namely, increasing the number of members.

[Excerpt 5]
(1) President: *Yelepwun-i ceyuyhan imotun hwaltongi swuncolopkey*
you -Nom. suggest all activities well
(2) *cinhayngtoyki-lul palapi-ta.*
be held Acc. wish-SFM
'I expect that all these activities you suggested
will be held in a good manner.'
(3) *Kulemyen taumulo wuli-ka nonuyhayya halkesun*
then next we-Nom. discuss do thing
'Then, what we are going to discuss next is.'

(4) Sungjin: *Hoywen swu-lul cungkanghanun pangan inkes-ipnita.*
member number-Acc. increase issue be-SFM
'The issue of increasing the number of members.'

(5) Minsun: *Yey, wuli-ka cicekhan mwuncey-cwung nacun hoywen*
Yeah we-Nom. point out problem-among low member
'Yeah, the low member participation, which was
one of the problems we pointed out earlier.'
(6) President: *Yey, macsupnita. tunglokhan inwunun 29-intey*
Yeah right registered member but

(7) *Chamsekhanun inwenun 15 myeng ipnita.*
attending people number be
'6-7: Yeah, that's right. There're 29 registered
members, but only around 15 are attending.'

Minsun relates this shift to earlier discussion. Beginning with the confirmative remark *Yey* 'yeah,' the president recapitulates some details and requests members' suggestions. In this process of topic shift, the participants cooperate one another and establish a collaborative conversational floor in a participation framework (Edelsky 1981, Schiffrin 1987).

Speakers also reintroduce prior topics in an attempt to avoid an uncomfortable conversational situation and to close disagreement (Marynard 1980, Song 1993, 1994a,b, etc.). In Excerpt 6, after finishing eating fast food, Minister Kim asks Jiun to clean up the table, and he teases and mockingly challenges her, when she rejects his request, by stating the general belief held by Koreans that women who clean up well will become beloved wives. After a series of playful disagreements in a teasing frame, Jiun initiates topic shift (Goffman 1981. Tannen 1979).

[Excerpt 6]
(1) Jiun: *Ani, ka -se cal -hal- lay- yo.*
No, go-when well-do- will-SFM
'No, I'll do cleaning up well after I get married.'

(2)Minister: No, *ka-se cal-han-tanun, cikum cal-an-ha-nuntey,*
go-when well-do-that now well-not-do-that
'No, you say you'll do it well when you get
married, but you're not doing it well now.'

(3) *ka-se cal-han-tanunkes elyewun-keya.*
go-when well-do-that difficult-SFM
'you say you'll do it well when you get married,
but that won't happen.'
[Minister Kim laughs, and laughter among participants]

(4) Jiun: *Na-nun chayk-ilhnunkesun coa- to, mekkonase chiwununkes silh -eyo.*
I -Nom. book -reading like-but eating clean up dislike-SFM
'I like reading books,but I don't like cleaning up after eating.'
[Jiun laughs, and laughter among participants]

(5) Minister: *yeuca-ka... yeuca-ka kunyang.*
woman-Nom. woman-Nom, but
'(You are) a woman, a woman, but'

(6) Jiun: *Kweynchanayo. Nay-ka yeca-ci namca-iey-yo?*
All right I-Nom. woman-be man-be-Q'SFM
'It's all right. I am a woman, not a man, aren't I?' [laughing]

(7) Minister: *Yeca-lul mwusihanun palen kathta-hayse,*
women-Acc. look down speech similar-because
'Because (this) sounds like a view discriminating against women,'

(8) *salamdul- i mak dulkoilesetey.*
people-Nom. really disagree
'women usually disagree with it.'

(9) *Kuluntey namca-ka mwe iluko-ha, yecatul-ul.*
but men -Nom. what this-say women-Nom
'But women also say something like "men should do likewise,"'

(10) *Ilun ilul calhay-ya pok patko salang patko hantey.*
this work do well-if happiness get love get be-said.
'People say that if you do this kind of work well, you'll be happy and beloved.'

(11) Jiun: *Kal-sikan-i twayss-kwuna!*
go- time-Nom. become-Q'SFM
'It's time to go home, isn't it!'

After being challenged, Jiun explicitly expresses her disagreement in a playful tone in (4-5). Minister Kim challenges her again in (8-10), and repeats his prior point in (11). Jiun, however, initiates a topic shift in (12) in an attempt to close disagreement and argument.

Participants also reintroduce previous topics when they want to continue their own prior topic after being interrupted. For instance, in Excerpt 7 from a conversation in which Minister Kim was talking about Jiun's trip to Korea, Richard switches to the talk about computers. Minister Kim thus interrupts Richard to return to his prior talk on Jiun's trip.

[Excerpt 7]
(1) Jiun: *Seykay cwung Seycong -i ceyil ita mal-ici*
three among Nom. best be talk-be
'You mean Seycong is the best among the
three kinds (of Korean word processor software).'

(2) Richard: *Kulay. Jiun-to paywe.*
right also learn
'That's right. Jiun, you should learn it.'

(3) Minister: *Ahh, ne hankwuk kase cochi? Ticketing ha-esse?*
oh you Korea go excited do-PAST
'Oh, you're excited about going to Korea, right?
Have you bought the ticket?'
(4) Jiun: *Yey, thukpyel hwalin path-ass-eyo.*
yeah special discount receive-PAST-SFM
'Yeah, I got a special discount.'

Beginning with the oppositional discourse marker *ahh*, Minister Kim suddenly and antagonistically interrupts Richard to return to the previous topic and continues to manage a single floor throughout the talk.

DYNAMICS AND INTERPLAY OF POWER AND SOLIDARITY

A speaker's topic shift reflects notions of power and solidarity, which are determined by social variables such as age, gender, and social status (Brown & Gilman 1960, Brown & Levinson 1987, Song 1994a, Tannen 1990, 1993, etc.) Korean culture is traditionally male-dominant and hierarchical; Koreans thus speak differently to different interlocutors. Topics and conversational floors are mostly changed and managed by male, older participants, but topic shifts are also dependent on the interlocutor's socio-cultural background and experience. In other words, this conversational norm is nevertheless perceived in different ways by Korean-Americans who have developed different attitudes toward these social variables.

During interactions in which conversational floors are managed by male participants, when female participants attempt to shift topic, they are often interrupted by male interlocutors. For example, in Excerpt 8 from a conversation about the eating habits of a Korean-American child, Sam, when Jiun attempts to shift topic, she is interrupted by Richard who is younger than she.

[Excerpt 8]
(1) Richard: *I- aytul-un mek- ko nonuntey* energy *sopiha-*
this- children-Nom. eat-and play spend
nunkus- kathey-yo. Kuleh-chi?
that - seem-SFM right-Q'SFM
'These children seem to eat food and spend their energy
in playing. It's true, right?'

(2) Sam: Euhmmmm? [rising tone]

(3) Richard: *Kuleh -chi?*
right-Q'SFM
'It's true, right?'

(4) Sam: What? [speaks in English]

(5) Richard: *Kuleh -tako-hay.*
right-that-do
'Just say that it's true. [Silence: 1.5]

(6) Jiun: *Kuleh -tako-hay.*
right- that-do
'Just say that it's true.' [Silence: 4.2]

(7) *Onul i- aytul- i an- wa- se ta thulleysse.*
today this-children-Nom. not-come-cause all wrong
'It's disappointing that the other members are late.'

(8) Richard: *Ne way* napkin *an- kace wasse?*
you why not-bring come
'Why didn't you bring a napkin?'

(9) Sam: I don't know. They don't have napkins. [speaks in English]

(10) Richard: Kitchen *kase kace wa.*
go bring come
'Bring a napkin from the kitchen'

Richard's teasing toward Sam is followed by silence in (5), and Jiun supports Richard. Jiun's attempt to tease Sam, however, ends up with no response from him, so to fill the silence, she talks about the member's being late in (7). She is, however, immediately interrupted by Richard, who comes back to Sam's eating habit.

A male speaker in a position of power can interrupt and take a conversational floor from a female speaker even when she is supporting him, as demonstrated in Excerpt 9 about air plane crashes.

[Excerpt 9]
(1) Minister: *Ku pihayngki-ka 30-pwun-kan huntuli-nikka,*
that plane -Nom. minute-for rock- because
'Because that plane was rocking for about 30 minutes,'

(2) *Na-nun ay-lul kkulean-ass-ci.*
I -Nom. baby-Acc. clasp-PAST-SFM
'I clasped my baby in my arms.'

(3) Jiun: *Wuli mikwuk cheum ol- ttay- unyo,*
we U.S first come-when-SFM
'When we came to the U.S. the first time,'

(4) *Ku nal koyngcanghi taypwungi mak pwulko kulayse*
that day very typhoon very blow because
'on that day, it was very windy, so'

(5) *Kuttay pihayngki-ka huntulitula-kwuyo.*
then plane -Nom. rock- SFM
'the plane was rocking.'

(6) *Cheum - inikka pihayngki-ka*
first time- because plane- Nom.
'Because it was the first time (for us
to take long flight), we thought the plane,'

(7) Minister: *Cokumun huntulintakwu.*
slightly rocking
'It usually rocks a bit.'

(8) Jiun: *Cheum -inikka ani cokwum huntuli- keyssci,..*
first-because well slightly rolling- maybe
'Because it was first time, (we thought that) the plane
was rocking slightly.'

(9) Minister: *Kukise o-nunkesun chalali kwaynchantakwyu.*
there come-that rather all right
'There is not much rocking when you're coming to the U. S,'

Although Jiun exhibits listenership by telling about her own experience on a rocking flight, she is interrupted by the minister. The minister is cooperative with Jiun at an ideational level in that he makes the same point, but he is in conflict with her at a participation level because he strategically interrupts her. After being interrupted, Jiun insists on holding the floor, but she is again interrupted by the minister, who seems to exercise the power guaranteed by his status and age.

Topics and conversational floors are mostly managed by older speakers in Korean conversational exchanges, and young participants are expected not to interrupt elders. Nevertheless Richard, who has lived in the U.S. since childhood, often interrupts Minister Kim, a coordinator of the college group in which he serves as president, as illustrated in Excerpt 10 about Jiun's visit to Korea.

[Excerpt 10]
(1) Minister: *Ol- ttay ettehkay pyenhayse ol-kka?*
come-when how changed come-Q'SFM
'How would she be different when she comes back from Korea?'

(2) *Te nalsin-hayse ol-kka? Te thenthen-hase ol- kka?*
more thin -being come-Q'SFM more healthy-being come-Q'SFM
'Would she come back thinner or healthier (fatter)?'

(3) *Hana tal-ko ol-kka?*
one with-and come-Q'SFM
'Or would she come back with someone (married)?'

(4) Richard: *Yocum kukey yuhayngitulaku-yo.*
nowadays that popular- SFM
'Nowadays, it's popular.'

(5) *Yocum nwun sayk- to pakkwun-tay-yo.*
nowadays eye color-and change-that-SFM
'Nowadays, people even change their eye color.'

(6) Minister: *Na-nun nwuka nwu-sayk-ul pakkwue-onta hayse,*
I- Nom. someone eye-color-Acc. change-come say
'Someone told me that he will change his eye-color,

(7) Richard: *Ani, kukun* contact lense *-eyo.*
No, that SFM
'No, that means the color of his contact lenses.'
[continues to talk about contact lenses.]

While the minister teases Jiun by directly commenting on her appearance, Richard interrupts him and abruptly switches to talk on contact lenses.

SUMMARY

This paper has discussed topic management strategies in Korean conversational discourse with reference to the use of discourse markers and context, the reintroduction of prior topics, and the notions of power and solidarity. Participants effectively employ discourse markers not only in cooperative and progressive topic shifts but also in antagonistic and digressive shifts. Speakers sometimes reflect context in shifting topics, especially when there is a person joining in in the midst of conversation, and a series of silences. They also reintroduce previous topics for several purposes including to remind other participants of an issue discussed earlier, to avoid an uncomfortable situation and to close disagreement, and to maintain their own prior topic after being interrupted. A speaker's topic shift reflects the dynamics of power and solidarity which are determined by a speaker's perception of various social variables. This study attempts to point out some cognitive and social aspects of topic management strategies in Korean conversation. However, it refrains from making over-generalizations about Korean because of the ambiguity and relativity of discourse strategies and the complicated interplay of social variables.

NOTE

1. The following abbreviations are used: Acc.= accusative case marker; Dat.= dative case marker; Nom.= nominative case marker; H'SFM= polite/ honorific sentence final marker; SFM= sentence final marker; Q'SFM= interrogative sentence final marker; PAST= past tense marker.

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COHESION DEVICES IN APHASIC DISCOURSE[1]

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In a previous study (Della Volpe, Williams and Li 1992), we investigated, the effect on aphasic speech of both familiar and unfamiliar interlocutors and topics in relation to narrative and procedural discourse.[2] The impetus for that investigation had been the discrepancy reported in the literature between low test scores and actual language performance of aphasic patients when in normal situation.

Since language processing is primarily concerned with the meaning of the message and its cohesiveness, a logical second step in our continuing inquiry, was the analysis of the data for the role of cohesive devices[3] across discourse type. We believe it is useful to determine whether the use of cohesive devices differs across various contexts and is therefore a factor in the variance of the actual language situation and the testing of aphasics.

A survey of the literature revealed that the majority of aphasic subjects have, in fact, difficulty in the use of cohesion.[4] Indeed, several studies had already investigated the use of cohesive devices in different discourse tasks[5] with conflicting results. Lemme, Hedberg, and Bottenberg (1984), for instance, examined the use of five types of cohesive relations in ten mild- to moderately-impaired aphasic subjects. The cohesive tie analysis included: reference, lexical, redundancy, conjunction, and substitution/ellipsis as defined by Halliday & Hasan (1976). Subjects were asked to construct oral narratives from: 1) a set of toy dolls, 2) a Norman Rockwell print, and 3) a set of sequence pictures. No significant differences were found, in this study, in the use of cohesive ties across the three discourse situations listed above.

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[1] This research was supported by VA appropriated research funds and by the Veterans Administration Medical Center, Bay Pines, Florida.

[2] Our results indicated, not surprisingly, that while subjects responded to familiar and unfamiliar interlocutors as well as to familiar topics with coherence and complexity of language, they showed less linguistic fluency when faced with unfamiliar topics.

[3] Cohesion refers to the relationship between words, sentences, or larger units within the discourse text. Through the use of cohesive devices, portions of the text are linked into a coherent whole (Halliday and Hasan 1976).

[4] For example, it has been noted that though most aphasic subjects were able to maintain the essential elements of discourse structure, they nonetheless showed diminished proficiency in the use of cohesive devices, and more specifically in the categories of reference and connectors (Chapman & Ulatowska 1989; Ulatowska & Bond 1983).

A second study by Bottenberg, Lemme, and Hedberg (1987) investigated the use of the same five cohesive devices described above (Halliday & Hasan, 1976) and ammended by Hedberg & Stoel-Gammon (1985) in twelve mild- to moderately-impaired adult aphasics. Narrative tasks involved the generation of discourse from three sets of pictures: 1) the Cookie Theft picture from the *Boston Diagnostic Aphasia Examination* (Goodglass & Kaplan, 1972), and a colored sequence pictures depicting 2) a fire scenario and 3) the Kennedy assassination. Again researchers reported that the percentage of total words (unweighted score) used in cohesive ties and the weighted percentage of words used in cohesive ties were not significantly different across the three narrative situations.

In an investigation which focused on the effect of shared and unshared knowledge in narrative discourse, Bottenberg & Lemme (1991) again found no significant differences. In their study, narratives were elicited from fourteen normal speakers and fourteen mild-to moderately-impaired aphasic subjects under two conditions: 1) a shared knowledge of the story stimuli with the listener, in which both parties viewed sequence pictures, and 2) an unshared knowledge of the story stimuli, in which only the subject viewed the pictures during the discourse task. Results indicated no statistically significant differences between these two conditions for the measures of cohesion (reference, conjunctive, substitution, and elliptical cohesive ties).

In a similar study involving the effects of listener knowledge, Brenneise-Sarshad, Nicholas, and Brookshire (1991) also found no significant effects of listener knowledge across four types of cohesive ties analysis, (lexical repetition, conjunctive, pronominal, and definite article). Ten aphasic men and ten normal speakers served as subjects in this investigation.

In summary, studies with aphasic subjects discussed in the literature thus far suggest that neither task type nor listener knowledge influence the use of cohesive devices in aphasic and in normal speakers. A limitation of these previous studies, however, is the relatively small number of subjects employed in each investigation and the fact that, though the stimuli varied, the discourse type remained essentially the same, with expository discourse overlapping narrative. In fact, a more recent study (Shadden, Burnette, Eikenberry, and DiBrezzo 1991), employing a larger group of normal subjects and varying discourse type, did find significant differences in the use of cohesive ties across discourse tasks. Twenty-one older women were asked to perform four types of discourse task: 1) the Cookie Theft picture from the *Boston Diagnostic Aphasia Examination* (Goodglass & Kaplan, 1983), 2) sequence pictures, 3) retelling a story read by the examiner, and 4) procedural discourse. An analysis of the percentage of cohesive ties (unweighted) and failed cohesive attempts was performed, following Hedberg & Stoel-Gammon (1985). The results showed that cohesive tie usage was greatest in the story retelling task, followed by the sequence picture, then the procedural discourse, and lastly, the picture description (Cookie Theft) tasks. Failed cohesive attempts were relatively uncommon.

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[5] Though it is not unusual for aphasic subjects to exhibit deficits in the area of cohesion. In several individual patients, cohesive adequacy improved with recovery from aphasia (Coelho, Liles, Duffy, Clarkso, & Elia, 1994; Piehler & Holland, 1984).

The purpose of the current study, then, was to address the discrepancy between the report by Shadden et al. (1991), the only evidence that the use of cohesive ties differs across various discourse tasks, and previous research which remaines, at best, tentative because of their small sample. Our investigation analyzed the use of cohesive ties across three discourse situations: 1) picture description, 2) procedural discourse, and 3) story retell. Both normal and aphasic speakers served as subjects.

METHODS

Subjects

Twenty-two adult aphasics were included in this investigation: five Broca's, seven conduction, and ten anomic aphasics.[6] These specific syndromes were chosen for inclusion because they are all characterized by good auditory comprehension and hence, the patients were capable of understanding instructions and performing the experimental tasks. In addition, ten normal controls were included. All subjects were right-handed, native speakers of English.[7] Table 1 provides additional subject characteristics.

Experimental Testing

At the onset of the testing session, tasks designed to determine syndrome of aphasia were administered (aphasic subjects only).[8] The reason for the testing is that with regard to spontaneous speech, fluency is one major characteristic distinguishing between anterior (Broca's) and posterior (conduction, anomic) aphasics. Criteria for classification were the six features of speech production used in the BDAE rating scale (Goodglass & Kaplan, 1983). The ratings were applied to 10-minute samples of spontaneous speech.

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[6] Syndrome of aphasia was determined by using the guidelines provided by Goodglass and Kaplan (1983). Specific aphasic subgroups were scrutinized since systematic differences in grammatic and lexical usage among aphasia categories were expected to influence verbal output.

[7] Aphasic subjects were medically stable at the time of testing and had sustained a single, left hemisphere cerebrovascular accident resulting in aphasia. In addition, all aphasics were able to produce at least some real words in a meaningful context.

To help differentiate conduction from anomic aphasic subjects, The Repeating Phrases Subtest of the Boston Examination (Goodglass & Kaplan, 1983) was administered. Conduction aphasics were expected to show repetition skills comparable to or below their spontaneous speech skills. Anomic aphasics were expected to demonstrate good repetition skills.

Task

Each of the three types of discourse examined in this study has unique characteristics. Expository discourse focused on a particular topic. Procedural discourse consisted of hierarchically ordered segments refering to how something was done. Finally, narrative discourse was a description of a happening related as a sequence of events or episodes conceptually or chronologically linked focusing on who or what (Longacre 1976).

To assess expository discourse, the Cookie Theft picture from the BDAE (Goodglass & Kaplan, 1983) was utilized. The subject was asked to describe the Cookie Theft picture as completely as possible.

Procedural discourse skills were evaluated by two tasks: going to the market and going out to dinner. Subjects were instructed by the listener to "tell me in four to five steps how you would ... (perform the particular task)." A number of examples were then provided prior to the actual experimental items.

Two story-retelling tasks were presented to determine narrative skills. Each story consisted of five sentences, with word frequency, grammatical complexity, and sentence length balanced across stories. The two stories (a doctor's visit and a shower) are presented in Appendix 1. The subject was instructed to listen to the story and "tell it back to me exactly as I have read it." The examiner read the story and the subject immediately retold it. Two sample stories were provided as practice items, ensuring that subjects understood the nature of the task prior to administration of the experimental items.

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[8] Type of aphasia was determined by the investigators after assessing three clinical parameters--auditory comprehension, spontaneous speech production, and repetition. To assess comprehension the Complex Ideational Materials Subtest from the Boston examination was used. All aphasic patients included in this study (Broca's, conduction, anomic) were required to demonstrate scores above the 50th percentile on this subtest.

Scoring

Testing sessions were tape-recorded in their entirety to allow for subsequent transcription. Subjects' verbalizations were scored from written transcriptions of the tape-recorded testing sessions. There were five discourse samples to analyze for each subject (cookie theft picture and two each of the procedural and story-retelling samples).

Prior to linguistic scoring, transcribed discourse was segmented into T-units, defined as one independent clause plus the dependent modifiers of that clause (Hunt, 1965). Only utterances pertaining to the specified topic were scored; irrelevant utterances were not scored.

Linguistic scoring employed the cohesive tie analysis, a procedure originally described by Halliday and Hasan (1976) and modified by Hedberg and Stoel-Gammon (1985). This analysis scores five types of cohesion: reference, lexical, conjunction, substitution, and ellipsis. A total percentage of words in cohesive ties (unweighted score), a weighted percentage of words in cohesive ties (weighted score), and the number of unsuccessful attempts (attempts score) were derived for each discourse sample.

To assess reliability, 25% of the cookie theft picture, procedural discourse, and story-retelling samples were re-scored by an independent aphasiologist. Inter-judge reliability was found to be 95%.

RESULTS

Three separate repeated-measures analysis of variance (ANOVA) were performed for: 1) unweighted scores, 2) weighted scores, and 3) attempts. Each analysis contained one within-group variable (discourse type) with three levels (picture description, procedural discourse, story retelling) and one between-group variable (subject type) with four levels (Broca's aphasia, conduction aphasia, anomic aphasia, normal speaker).

Analysis for unweighted scores revealed a significant main effect for discourse type [$F(2,27) = 7.27$, $p < .01$]. No other main effects or interactions were significant. The means and standard deviations are listed in Table 2. Scheffe's post hoc testing revealed that a significantly higher scores were obtained in the story retelling task as compared to both picture description and procedural discourse tasks ($p < .05$).

Analysis of weighted scores revealed a main effect for subject type [$F(3,28) = 10.86$, $p < .001$]. No other main effects or interactions were significant. Means and standard deviations are listed in Table 3. Scheffe's post hoc testing revealed that normal subjects produced significantly higher weighted scores when compared to Broca's aphasic subjects ($p < .05$).

Analysis of unsuccessful cohesive tie attempts revealed a main effect for subject type [$F(3,28) = 7.20$, $p < .01$]. No other main effects or interactions were significant. Means and standard deviations are listed in

Table 4. Scheffe's post hoc testing revealed that Broca's aphasic subjects exhibited a significantly greater number of unsuccessful attempts as compared to both normal and anomic aphasic subjects ($p < .05$). Conduction aphasic patients also exhibited a significantly greater number of unsuccessful attempts when compared to normal and anomic aphasic subjects ($p < .05$).

DISCUSSION

A significant difference was found within discourse tasks: significantly higher unweighted scores were produced in the story retelling task as compared to both picture description and procedural discourse tasks. This indicates that subjects used a greater number of cohesive ties during the story retelling, as oppposed to the other two tasks.

In contrast to several earlier studies utilizing smaller numbers of subjects, which did not discover differences in cohesive tie usage across varying tasks (Lemme et al, 1984; Bottenberg, et al., 1987), results of the current study are consistent with the findings of Shadden et al. (1991). Shadden et al. (1991) also discovered differences in cohesive tie usage across discourse tasks. In addition, the trend of cohesive tie usage was similar to our study: the greatest percentage of unweighted cohesive ties occurred in their story retell task.

In the analysis of weighted scores from our data, a main effect was found for subject type. As might be expected, normal subjects produced significantly higher weighted scores than Broca's aphasic, who were likely to exhibit agrammatism. It is interesting that there was no significant difference in weighted scores among discourse tasks, in contrast to the above-noted difference in unweighted scores. This discrepancy suggests that both normal and aphasic speakers employ a greater number of cohesive ties during the narrative story retell in order to bind characters and events, however, the complexity or quality of cohesive ties usage does not increase. In other words, the task is what dictates a greater number of connective devices, without necessarily raising the level of complexity.

An analysis of attempts indicated that Broca's and conduction aphasic speakers had substantially greater numbers of unsuccessful attempts as compared to normal and anomic aphasic speakers. In light of the relative nonfluency of the Broca's and conduction subgroups and the agrammatism of the Broca's aphasics, this finding is not unexpected.

In summary, the current study supplies additional evidence that variation in discourse type does affect the use of cohesive devices. This finding serves to enhance the observation that the unique structure of each discourse type places different linguistic demands on the communicator. In fact, it is not surprising that the use of cohesive ties was significantly greater in the story retell (narrative) situation. Ulatowska and Chapman (1989) have already noted that, as in normal patients, aphasic narrative discourse typically involves cohesion across larger segments of text when compared to other types of discourse (e.g. procedural) and thus may necessitate a greater use of cohesive devices.

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APPENDIX 1

STORIES USED IN THE STORY RETELL TASK

A DOCTOR'S VISIT

Tom, my six-year old, had a sore throat and fever. I took him to the doctor's office. We spoke to the receptionist, signed in, and sat in the waiting room. The doctor examined Tom. Tom was diagnosed with strep throat.

A SHOWER

Mary decided to take a hot shower. She went into the bathroom. She stepped into the shower, reached for the soap, and turned on the hot water. The water was icy cold. Her hot water heater was broken.

THE USES OF LAUGHTER IN DYADIC CONVERSATION

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1. INTRODUCTION

Many aspects of interpersonal communication have been studied, but little work has been done on the function of laughter in conversation. Laughter is, of course, a response to humor. But laughing may indicate other things than humor. Indeed, we laugh in response to just about any sort of emotional state and any kind of situation. Laughter may be a response to nervousness, a relief after strain, the defense mechanism of "laughing it off," joy, or the expression of high spirits, to mention only a few.

This paper will focus on laughter as a conversational response. The following points will be considered: (1) the use of laughter as a conversational ploy, (2) the topic of the remarks that elicited laughter, (3) the characteristics of humor that elicited laughter, and (4) the frequency distribution of laughter throughout the half hour.

2. THE DATA

The data were elicited from three tape-recorded conversations. In each case the participants were a previously unacquainted male and female university student from the same hometown. Because each participant was either born in the town or moved there prior to school age, the assumption was made that both participants in each dyad would have the same regional dialect. They were also matched for socio-economic status. In addition, all participants were selected on the basis of the results of a semantic differential self-evaluation in which they were assessed according to personality type, from shy/reserved on the one hand to out-going/social on the other.

These gross evaluative measures were intended to match the participants, resulting in dyads of approximately the same socio/regional dialect and the same personality type. The last consideration is to prevent the kind of skewed results that would follow from a dyad consisting of an extrovert and an introvert.

One dyad consisted of two undergraduate students of the same age. The second dyad consisted of two undergraduate students with the male being ten years older than the female. The third dyad consisted of an undergraduate female and a male graduate student teaching assistant, the male being ten years older than the female. Ideally, various sociolinguistic factors (sex, education, age, role, and so on) would be included in order to have statistically more significant results. For purposes of this paper within the limitations of time and access, only these three dyads were studied. Please view this paper as an exploratory attempt.

3. USE OF LAUGHTER AS A CONVERSATIONAL PLOY

Dyadic conversation follows the basic principles of communication--cooperation, turn-taking, adherence to a set of communication norms (Grice 1957, Goffman 1981, and others). John Dore (1977) developed a coding system for analyzing conversational moves. One of the categories is Acknowledgement, which is used, as Straker (1980) says to "recognize and evaluate responses and non-requestives". Acknowledgement is further subdivided into neutral Acceptances, Approvals/Agreements, Disapprovals/Disagreements, and Returns. While Dore and Straker (1980) recognize only lexical items under Acknowledgement, it appears that laughter substitutes for any of the various sub-types of Acknowledgement. In the second dyad in particular, the female participant uses laughter frequently as an Acknowledgement.

The neutral Acceptance of an answer or non-requestive can be expressed with a "yeah" or "oh" word. The second dyad gives evidence that laughter is also used.

(1) M: Do you sing?
B: Not really. That's not a prerequisite. But, yes, I do.
M: (laughs)

Approvals/Agreements usually signalled by "right" or "yes" were also signalled by laughter in the second dyad.

(2) M: Definitely not chemical engineering, not my...
B: Forget chemistry.
M: (laughs)

Disapproval can also be signalled by a "disapproving" laugh, as well as by such expressions as "no", "wrong", and "I disagree."

(3) B: I went to FSU for one term.
M: Oh. [falling pitch] (laughs disapprovingly)

The same speaker signalled Returns frequently by using a laugh. In fact, the majority of her laugh responses were of the nature of a Return, rather than a response to any overtly humorous remark.

(4) B: The first test I made like 110 on because they gave me extra credit. And then the next test made 98 and then a 70-something and then right on down.
M: (laughs)

The use of laughter by the female in the second dyad as Acknowledgement may turn out to be an exception, however, judging from the first and third dyads. While both of these dyads and the male in the second dyad used Acknowledgement of all types as much as the female speaker in the second dyad, they did not make use of laughter alone as a conversational ploy. Further observations and larger populations are needed to determine the extent to which laughter is used solely as a conversational Acknowledgement and by whom it is used.

4. NUMBER OF TIMES LAUGHTER OCCURRED

One result of the anomalous laugh behavior of the female in the second dyad is a large difference in the amount of laugh episodes performed by each participant. (See Table 1 below.)

Table 1

NUMBER OF TIMES EACH PARTICIPANT LAUGHED
AND THE PERCENT OF THE TOTAL FOR EACH GROUP

		Male	Female
First Group:	Same age; student/student	5 (25%)	15 (75%)
Second Group:	10-year age difference; student/student	1 (2%)	63 (98%)
Third Group:	10-year age difference; teaching asst/student	27 (52%)	25 (48%)

The first dyad also follows the same trend as the second dyad even though the total number of laugh responses in considerably fewer than in the second dyad. The third dyad does not follow this trend. The male and female speakers each laugh an equal percentage of times. A further research question suggested by this preliminary study is whether the first and second dyads are the norm and whether the equal number of laughs in the third dyad is a result of the unique personality of the teaching assistant.

The literature tends to uphold the findings of the first and second dyads. Coser (1960) found this kind of disparity between the sexes for the amount of laugh responses in a study of hospital staff meetings. She reports that the men told the jokes and the women laughed and considers this indicative of a status system in which the superior tells the jokes and the inferior laughs at them. Neitz (1980) comments that "It is ridiculous to postulate that women don't tell jokes at all [as Freud and Martin Grotjohn have suggested], but perhaps Coser's suggestion is accurate--that in hierarchically structured situations women fulfill feminine role expectations and do not tell jokes." Other studies (Haas 1977, Duncan and Fiske 1977) have generally upheld this finding. Neitz (1980) comments that humor is the prerogative of the superordinate person in a social relationship to reduce the social distance. Humor offered by the subordinate person will be considered inappropriate unless the target of the humor is the subordinate person him/herself.

5. TOPICS THAT ELICIT LAUGHTER

Berger (1973), in his work on initial encounters, gives the most common topics likely to be touched on by the unacquainted. A comparison of Berger's list with the content of remarks immediately preceding laughter shows a prevalance of four topics. (See Table 2 below for a complete listing of topics.) Examples from these four areas are as follows:

(5) Things you've done. (27%)

B: It made it real easy for me, just being stuck in the middle of it with no escape.
M: (laughs)

(6) the kind of person you are. (21%)

S: I don't want to get into anything that has to do with mathematics.
T: (laughs)

(7) Hopes and plans for the future. (12%)

B: So I have to, you know, go during the summer.
M: Stretch it out a little. Yeah.
B: Go during the summer. and you can, you can graduate in the same length of time if you, if you use the summer courses. so that's what I'm looking forward to. That way I can take it easy, get a little bit of rest.
M: (laughs)

(8) People you know. (10%)

B: Having met my wife, of course, she wasn't my wife.
M: (laughs)

Table 2

TOPICS THAT ELICITED LAUGHTER
(Expressed by percent of total laughter for each group)

	First Dyad	Second Dyad	Third Dyad	Total
Likes and Dislikes		2	17	7
Kind of person you are	20	6	40	21
Attitudes: politics/religion				
People you know	5	19	1	10
Hopes/plans for future		16	12	12
Places you've been		2	8	3
Parents and family	15	3		5
Hometown		2		1
Things you've done	45	44	1	27
Hobbies				
Vacation			4	2
Other	15	6	17	12
Total	100	100	100	100

The first and second dyads, comprised of students only, recorded almost half their laugh episodes in response to the "Things you've done" category; whereas, the teaching assistant/student dyad only showed 1% in this category. On the other hand, in the third dyad, 40% of their laughter is in response to the category "Kind of person you are," compared to only 20% and 6% respectively for the first and second dyads in this category. "Hopes/plans for the future" elicited laughter in the dyads composed of older and younger participants, while the younger, same-age participants did not respond with laughter at all to this topic.

While these figures have not been submitted to tests of statistical significance, they provide for viable preliminary hypotheses and they may give an indication as to what appropriate responses to these topics are, according to one's relative status and age.

My own data adds four more topics to those Berger discusses in his work on initial encounters. These four topics together, given in Table 2 (above) as "Other", are as follows:

Things you're doing now

(9) J: I don't know. It seems like more and more girls these days want to get their own life style rather than...
S: That's true.
J: Just get married and just...
S: I'm taking the marriage and family class (laughs)

General statements of fact.

(10) M: Did you ever take Spanish?
B: No.
M: No.
B: NO.
M: Mistake number one. Everybody takes Spanish in high school. (laughs)

(11) S: You can pretty much specialize in anything. You could do, you could do all the..., You know you could do sports law, entertainment law.
T: Plumbing law?
S: (laughs) No.

Opinions about people and things.

(12) S: Oh, Holland's nice. We went to Amsterdam.
T: They all look the same. The women all look like sisters and the guys all look like brothers.
S: (laughs)

Things you've heard about.

(13) T: Have you heard of, oh, *Children of a Lesser God*?
S: Un-huh
T: They had to have translators, sign translators, when they showed that in Britain.
S: God.
T: I mean, they took it on the stage in London and had somebody speaking British sign language over here translating, watching what was going on. (laughs)

6. CATEGORIES OF HUMOR

Dyadic conversations can also be analyzed according to categories of humor that the remarks leading up to a laugh response contain. The humor present was of a subtle, conversational type. Gruner (1978) suggests the following categories: exaggeration, incongruity, surprise, slapstick, the absurd, human predicaments, ridicule, defiance, violence, and verbal humor.

There were no instances of "Slapstick" or "Violence" in my data, probably because of the nature and the setting in which the conversations were held. First, they were real person-to-person conversations in which violence would be not viewed at all in a humorous way, as it sometimes is in an artificial, staged setting such as a movie or cartoon. Also, the converstions were conducted in a graduate student's study carrel. The physical conditions were cramped; even if the participants had wanted to, there was no room to get up and fall over a chair or to perform some other such act of slapstick.

It is interesting to note that in the data elicited in this study no jokes per se were told.

The categories of humor that were preferred were the following ones:

Incongruity (18%)

(14) J: That must be wierd, your mom going on a date. I couldn't imagine it.
S: It was. (laughs)

Surprise (17%)

(15) B: And like towards the end of the semester, I made like a 14, a 7, made a 20.
M: Oh. (laughs)

B: But those were As just because it was curved. Those like, I had the highest grade in the class.
M: (laughs) Oh, my gosh.

Human Predicament (18%)

(16) J: And we started going out right when she went out there. And that's when we broke up. (laughs)
S: Oh, no. (laughs)

Ridicule (16%)

(17) S: My mother goes to Paris all the time.
T: Paris is dirty and obnoxious. (laughs)
S: (laughs) Oh, yeah. Obnoxious, that's for sure.

Table 3

CATEGORIES OF HUMOR

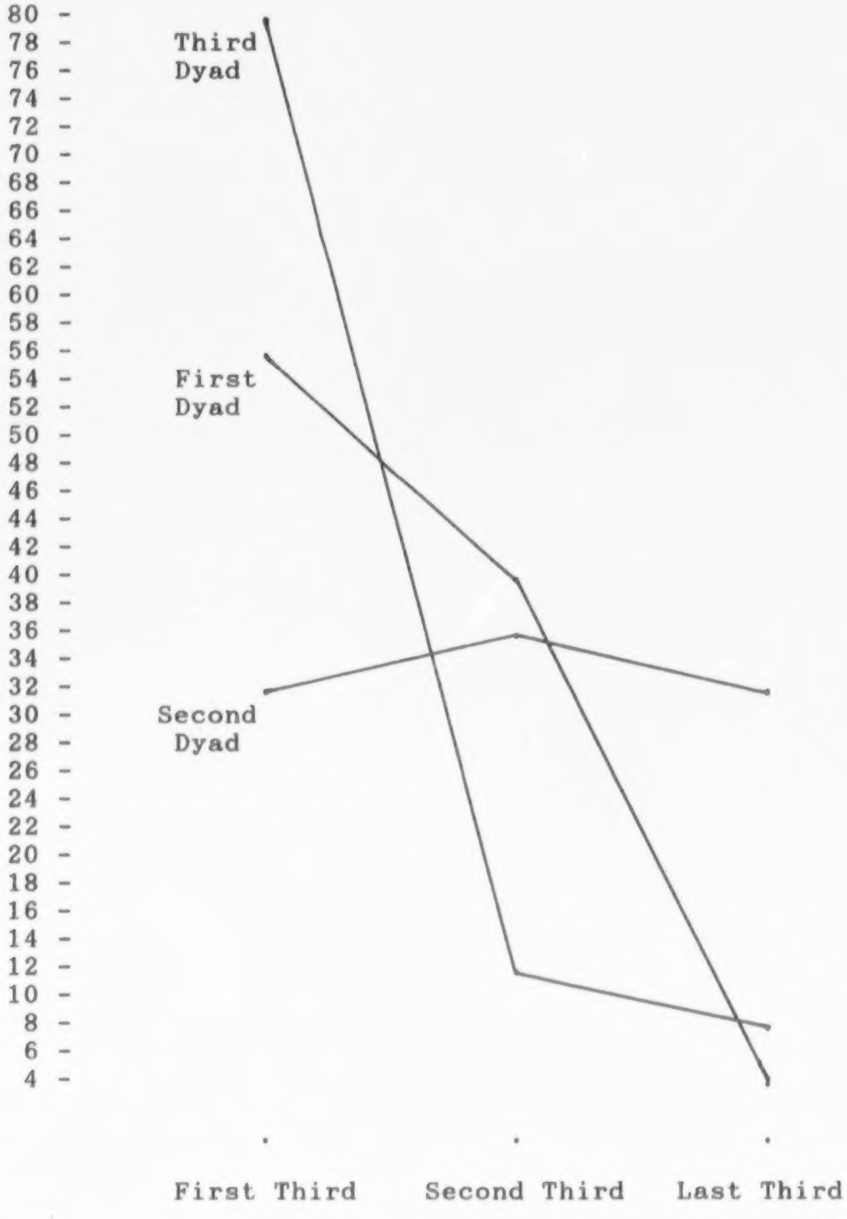
	First Dyad	Second Dyad	Third Dyad	Total
Exaggeration	5%	9%	13%	10%
Incongruity	25%	19%	13%	18%
Surprise	25%	14%	18%	17%
Slapstick				
Absurdity		9%	10%	8%
Human Predicaments	25%	23%	8%	18%
Ridicule	10%	16%	19%	16%
Defiance		8%	15%	9%
Violence				
Verbal Humor	10%	2%	4%	4%
Total	100%	100%	100%	100%

7. DISTRIBUTION OF LAUGHTER

Some interesting tendencies are found when the distribution of laughter over the half hour conversation is investigated. (See Figure 1 below.) For the first and third dyad there is a definite tendency for the number of laughs to diminish during the last two-thirds of the half hour. This phenominon could be tied to laughter's also being an indicator of nervousness and/or release of tension, as mentioned earlier.

Figure 1

DISTRIBUTION OF LAUGHTER DURING THE FIRST HALF HOUR



Horizontal Axis: Amount of time elapsed
Vertical Axis: Percent of total laughs per group

With the second dyad, however, the amount of laughter in each segment stayed about the same. As was described in Section 3, the female participant in the second dyad very often used a laugh as an Acknowledgement type of conversational ploy. As this seems to be a stable conversational habit of hers and since the male participant laughed only once during the entire half hour, it is to be expected that this consistency would be reflected in the frequency distribution as well. Whether these traits are typical of dyads of this type is unknown at this time. More data are necessary in order to confirm this deviation from the general tendency that is suggested by the first and third dyads.

8. CONCLUSIONS

By considering laugh response in these various ways, a pattern begins to form of the way in which laughter is used by unacquainted university students in initial encounters. The following tendencies have been suggested by the data:

1. Laughter may be used as an Acknowledgement type of conversational ploy.
2. Topics most likely to be talked about and laughed at are "Things you've done", "Kind of person you are", "Hopes/plans for the future", and "People you know."
3. The categories of humor most likely to result in laughter are Incongruity, Human Predicaments, Surprise, and Ridicule.
4. Most laughter occurs in the first third of a half-hour conversation, dropping off sharply after that.

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IV

LEXICAL, MORPHOLOGICAL, AND LEXICO-SEMANTIC STUDIES

The Formation of Complex Lexemes
A Conceptual Analysis

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Introduction

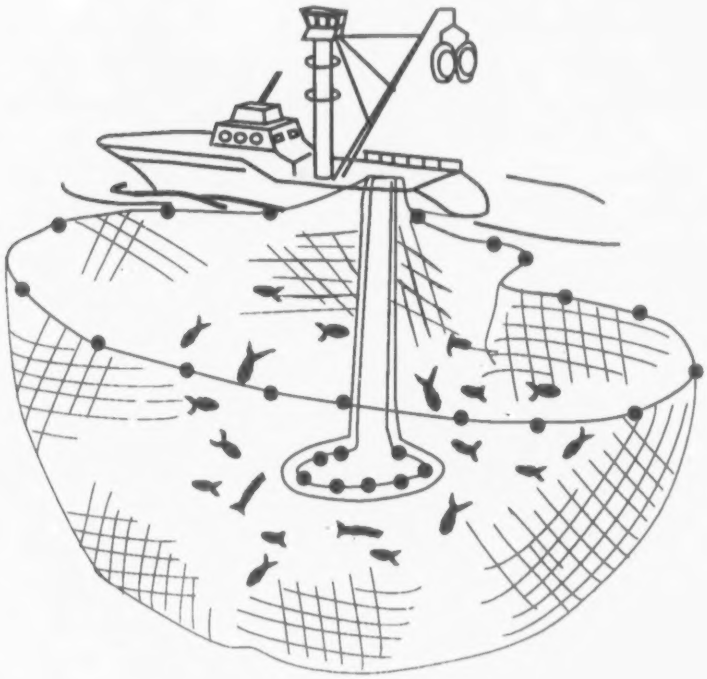
A morphosyntactic description of the formation of complex lexemes was presented at LACUS 1994 in the paper, Neologisms in Acadian-French Fishing Terminology: An analogical syntax analysis. This analysis combined an adaptation of David Lockwood's morphotactic realizational approach (Lockwood 1993:134) and William Sullivan's graphic representation of a relational network with some tactic generalization. A set of lexical-fishing gear formations were grouped according to class membership. Construction and class-membership formulas with analogical substitutions in turn served to show the internal organization of the lexical formations. Connections to meaning were not included in the analysis. To the extent justified by the data, this description permits a certain amount of tactic generalization. Thus, it differs from Sydney Lamb's recent work (1991:182) which suggests that there is no need for syntax. Certain syntactic properties, such as linear ordering of morphemes in a lexeme, are accounted for in other ways.

Lamb (1994), focuses on language as an integrated system for communicating meaning which is henceforth incorporated into the conceptual level.The conceptual system is seen as a hierarchical integrative system linking the linguistic system to other systems in the brain such as the visual, the perceptual and the motor as well as providing the linkages of concepts to the various systems. A nection is the theoretical unit of linguistic analysis which makes available the linear order provided in the tactic patterns in previous models of cognitive-stratificational theory. A lexicalized instantiation, learned as a unit, is represented as a lexemic nection or logonection which is connected to a conceptual or ideonection. The syntactic behavior of a lexeme is based on the conceptual properties of the concepts to which it is connected. No additional structures corresponding to earlier tactic patterns are needed at the lexemic level to specify the sequence of new combinations because sequencing structures are already present and function as exemplars for a new formation produced by substitution (Lamb 1991:183). A sequence structure may be stored as an entirely new nection, or as a partially new nection sharing a portion of the old one.

Purpose

This paper aims at examining the degree to which Lamb's Cognitive Theory of Language explains how exemplars were chosen by each of three Acadian-French fishermen in naming the fishing-gear term purse seine as shown below in Figure 1.

Figure 1



Data:

The English deep-sea fishing-gear term **purse seine** used in this study, is taken from the data base of the geolinguistic project "Atlas linguistique des côtes francophones de l'Atlantique" which is still in progress. When interviewed, three Acadian-French fishermen living in

Caraquet, New Brunswick, responded differently to naming **purse seine** whose standard French equivalents are **filet coulissant**, **senne à coulisse** and **senne coulissante**. The **purse seine** is used to fish tuna and other deep-sea fish. One of the fishermen simply borrowed the English term into his vocabulary while the other two, instead of using the standard French terms, formed complex lexemes by analogy.

Method:

Actual data of dynamic language use and the inter-language influence on it are examined in terms of their cognitive source which is represented as a network of complex nections linking concepts to their lexical realizations. Since borrowing the English term **purse seine** involved a different process from that used in forming new lexemes analogically, two different analyses are provided.

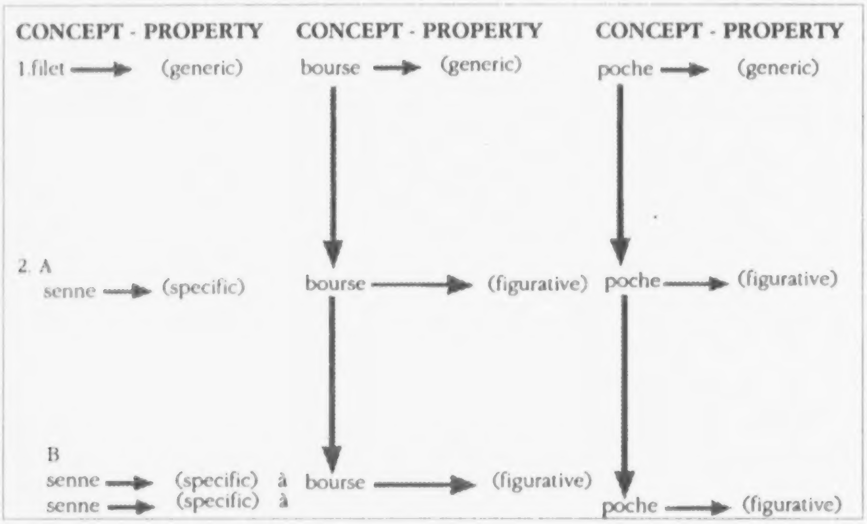
Analysis - Analogical Formations

If there exists a standard French term **senne coulissante** and its variants **senne à coulisse** and **filet coulissant**, why did Fisherman A coin the term **senne à bourse** and Fisherman B the term **senne à poche**?

The lexemes **bourse** and **poche** have a common feature. They both refer to a bag ,whereas the lexemes **coulisse** and **coulissant** have the common feature of referring to a sliding motion. The standard terms **senne à coulisse** and **filet coulissant** depict a functional reference to the way the rope at the top of the net slides shut when it is filled with fish. The fishermen on the other hand, chose to name the net according to its shape which resembles a bag. The two modes of naming, function and shape, signal an important cognitive point the development of which, is beyond the scope of this paper.

Analysis of the production of new lexemes analogically includes a specification of the shared properties at the conceptual level between the new formations and instantiations already existing in a person's information system. In cognitive network terms, the process of forming the lexemes **senne à bourse** and **senne à poche** was from the visual system to the conceptual, the lexical, and the phonological, resulting in an utterance of the new formations.

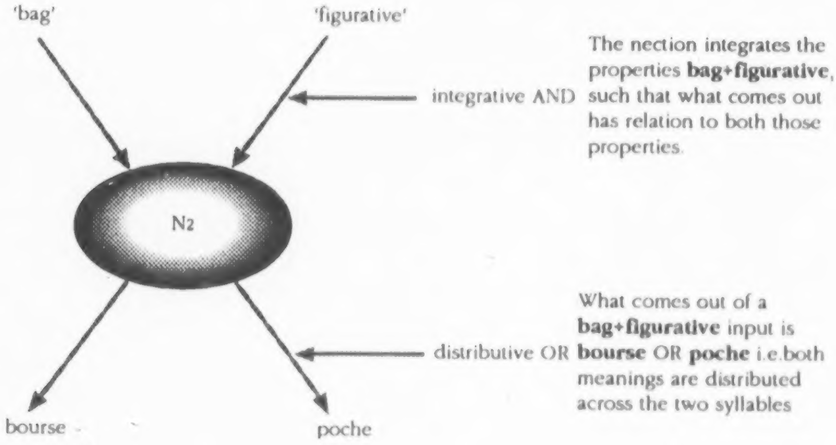
To coin new lexemes, there must be large numbers of latent nections in the lexical and conceptual areas of the network. At the conceptual level, each of the concepts **bourse**, **poche** and **senne** has nections that relate them to visual or functional properties. The term property is used here for a cognitive area that is conceptually significant to the fisherman in question. When a nection associated with **bourse** was needed to carry some new information, the appropriate property nection was selected, recruited and automatically activated as the message was received. The nections associated with the words **bourse** and **poche** are very close because they are related to many of the same geometric-visual or functional properties. The lexeme **senne** is related to a specific area since it refers to a deep-sea fishing net. A preliminary description of the concept lexemes and some of the properties to which they are related is outlined as follows:


CONCEPT - PROPERTY
CONCEPT - PROPERTY
CONCEPT - PROPERTY
1.filet
(generic)
bourse
(generic)
poche
(generic)
2. A
senne
(specific)
bourse
(figurative)
poche
(figurative)
B
senne
(specific) à
bourse
(figurative)
senne
(specific) à
poche
(figurative)

Nections, like neurons, have two major functions, integration and distribution (Lamb 1994). In a relational network graph Figures 2 and 3, the nection in its function as an integrative structure, connects the specific feature of the ideonection **senne** with the figurative feature of the ideonections **bourse** and **poche**, thus allowing the selection of features to be apprehended as units. The distributive structure then allows the output of the integrated units to be realized as the terms **senne à bourse** or

senne à poche at the lexemic level. Here, inclusive OR has the same effect as AND.

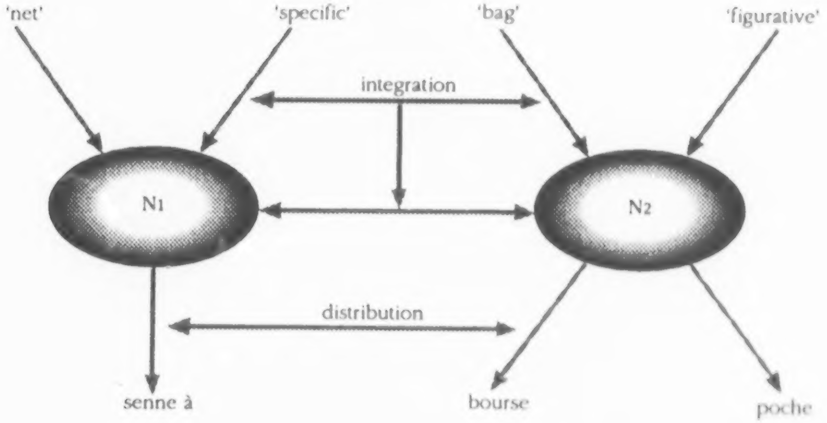
Figure 2


'bag'
'figurative'
integrative AND
N2
distributive OR
bourse
poche

The nection integrates the properties **bag+figurative**, such that what comes out has relation to both those properties.

What comes out of a **bag+figurative** input is **bourse** OR **poche** i.e.both meanings are distributed across the two syllables

Figure 3


'net'
'specific'
'bag'
'figurative'
integration
N1
N2
distribution
senne à
bourse
poche

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The diagram in Figure 3 does not account for the function of **à** and its disjunctive **de + noun phrase structure**. Interested readers should check Lamb 1994. The fact that analogy is formed on the basis of **senne à coulisse**, rather than on **filet/senne coulissant(e)**, indicates extensive generalization as being part of Fishermen (A+B)'s cognitive system. Activation in the Figure 3 diagram, moves through the network from nection to ñection with little or no lasting change to the network itself. This is not the case with borrowing, which requires structure building.

Borrowing

The fishermen from Caraquet travel to the predominantly English-speaking provinces of Nova Scotia and Prince Edward Island to do deep-sea fishing. Fisherman C borrowed the term **purse seine,** instead of coining a French equivalent, as did Fishermen A and B. This compound noun, at one point in time, was coined by English fishermen, who combined the English lexeme **purse** with the borrowed **seine.** Fisherman C integrated the term used by the English fishermen into his information system as a lexical unit. Actually, the only borrowing was the English lexeme **purse**, since **seine** was already stored in his cognitive system. According to the data base, this fisherman also has the English term **box net** in his information system, so that the sequence N+N (characteristically English) is part of his cognitive network.

With regard to relational networks, I assume that recognition and structure building go together, since recognition determines where to build the new structure. Structure building carries with it the principle that the French equivalent of the borrowed English term be known at the fisherman's conceptual level. A conceptual analysis of the English term **purse seine** shows that it has features identical to those of the French terms **senne à bourse** and **senne à poche.** Since new lines can be added to nections that have already been recruited, a first step toward generalization is realized when a line is built in to connect the English lexeme **purse seine** with the corresponding activated French ideonections at the conceptual level.

Discussion

The paper Neologisms in Acadian-French Fishing Terminology : An analogical syntax analysis (LACUS 1994), was a necessary precursor to the present conceptual analysis of how the fishing-gear exemplars were chosen by the Acadian-French fishermen in that it permitted a thorough understanding of the data and showed that analogy is a first step in generalization. It also inspired further research which led to the discovery that the new terms formed by the fishermen are based on conceptual as well as on distributional criteria.

The tenet that complex lexemes are instantiations of tactic combinations at the lexemic level is not used in Lamb's recent model because specification of the structure of tactic patterns and their interconnections with the rest of the network continues to be a problem (Lamb: 1991:181). The recent network model fits what is known about the brain as a network of neurons which are the basic modules of which neural networks are built (Reich: 1973). In Lamb's model however, the nection and not a neuron, is the basic structural unit of linguistic description. Nections from the lexemic level are directly connected to the conceptual structure so that generalization is accounted for either by activation moving through the network with little or no change to the network itself or by building a minimal number of new connections between nections.

The present study also shows, that though there was similarity in the form of shared features at the conceptual level of the terms used by the three fishermen, each used his conceptual system in a different way when naming a piece of fishing gear. What this suggests is that the cognitive system of each fisherman has information organized in a different way.

A by-product of the cognitive conceptual analysis of the formation of new lexemes provides information about the fishermen's interests and preferences in naming new gear. Fishermen A and B were neither interested in borrowing the English term nor in using the standard French terms. These two factors could be interpreted as a reinforcement of the fishermen's Acadian identity. Fisherman C, on the other hand, had a tendency to borrow English terms. This raises the question, why? This fisherman had a functional, rather than a fluent use of English, which was restricted to communicating with anglophones. Therefore, it could be hypothesized that his use of English was socially motivated in that he wanted to be regarded as an equal by the Nova Scotia and Prince Edward Island English fishermen.

Conclusion

Analysis of the formation of new fishing-gear terms in Lamb's 1994 model of the cognitive approach to the study of language, shows that generalization can be accounted for as an analogic extension of lexical items described by an interconnected network of nections between the lexemic and conceptual levels without resorting to a tactic pattern. It also shows that individuals differ in their degree and manner of using analogy. However, the question is still open as to how far analogy can go to describe generalization. It is possible that some people may go beyond the analogic extension of individual exemplars to develop a more or less extensive tactic pattern which may also differ from person to person.Therefore, further research is needed, using the relational network system as the central component of the human information system to analyze new vocabulary formations in order to determine to what degree analogy and inter-language contact account for the formation of complex lexemes in inter-language contact without needing to resort to tactic structures.

I wish to thank William Sullivan for his comments on this paper and for supplying the relational graphs.

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ADVERBIALS OF TIME AND THE POLISH CASE SYSTEM

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Introduction

This paper considers the representation of time by time-denoting substantives (time-substantives) used in the function of adverbials and the relationship between the meaning expressed by these time words and the temporal signification of verbal predicates.[1] Nuances of this relationship are examined on the material taken from Polish, where substantives (including those functioning as time adverbials) are always marked for case, whether they appear alone (as in ***wieczorem***-Instr. = *in the evening*), in nominal phrases with adjectives (*ubieg!ej* ***zimy***-Gen. = *in the by-gone winter*) or adverbial particles (*lada* ***chwila***-Nom. = *any moment now*), or in combination with prepositions in prepositional phrases (*za* ***godzinę***-Acc. = *in an hour*).

Time substantives are words which through their lexical meaning denote conventional units or periods of time, such as *day (dzień), night (noc), hour (godzina), seasons (pory roku)*, etc., or conventionally distinguished points in time, such as *noon (po!udnie), midnight (pó!noc), dawn (świt)*, etc. When they are used as adverbials, they serve to locate events on the line of time with respect to some conventionally distinguished points (such as *midnight* in *It happened just before midnight.*) and to indicate their approximate length according to the conventionally accepted measures of time (such as *a day* in *The wedding lasted seven days).*

In Polish, time-denoting substantives used in the function of time adverbials can be marked by all the cases except the vocative, as witnessed by examples given in (1).[2] Most Polish time-substantives decline for all seven cases (see e.g. the paradigm of *dzień = day: dzień,-N. dnia-G., dniu-D., dzień-A., dniem-I., w dniu-L., o dniu!-V.)*, but constructing a complete six-case paradigm of acceptable adverbial uses with the same lexical item has proved impossible mainly because the lexical meaning of a substantive has a strong bearing on the meaning of the case this substantive is being used in (as emphasized by Jakobson 1956[1971: 48] and Janda 1993: 142) and also, because the general meaning of a given adverbial of time is not always compatible with the lexical meaning of the time word. Therefore, each use of a case with a different lexical item (even if all of these items express time) has its own peculiarities, and it cannot be taken for granted that if an adverbial time-substantive admits one case, it will automatically accept other cases in this function. E.g. the word *dzień(day)* used in the phrases functioning as adverbials of time can be marked by the nominative, the genitive, the accusative, the instrumental and the locative, but it refuses the *ku* construction with the dative (**ku dniowi*); the substantive *wieczór (evening)*, on the other hand, accepts all adverbial constructions except the locative (* *w wieczorze*). Hence, adverbials in the examples of (1) contain two time-substantives: the word *dzień (day),* whose lexical meaning in Polish implies clearly-cut limits of the twelve-hour period between the end of one night and the beginning of the following night, and the time-substantive *wieczór* *(evening)*, which denotes a period between day and night, whose length and border limits are harder to specify:

1a. NOMINATIVE **Co dzień** spotykam ją w parku.
I meet her in the park **every day**-Nom.
1b. GENITIVE **Każdego wieczora** przychodzisz z nowym problemem.
Every-Gen. **night**-Gen. you come with a new problem.
1c. DATIVE Mialo się **ku wieczorowi.**
It was having itself on **to the evening**-Dat.
'The evening was near; night was drawing on.'
1d. ACCUSATIVE Pisal to **caly dzień.**
He was writing it **all**-Acc. **day**-Acc. (long).
1c. INSTRUMENTAL Wpadnę **wieczorem**.
I will drop by [in the] **evening**-Instr.
1f. LOCATIVE Przyjmij nasze najlepsze życzenia **w Dniu** Imienin.
Accept our best wishes **in the Day**-Loc. of your
Patron Saint-Gen. (your Name-day wishes).

From the point of view of their grammatical part-of-speech nature, time substantives are nouns, and as such (in the words of Gustave Guillaume), they represent "notions construed in space", unlike verbs, which through their grammatical nature represent notions conceived primarily in time. Time denoted by adverbials is extrinsic to the event time evoked by the grammatical form of the verb; time units evoked by adverbial substantives enrich the representation of event time by providing elements of orientation and measure, but they are not part of the event themselves, for they do not participate in developing it in time.

Since time substantives evoke notions construed in space, their significates can be imagined as objects in space, as physical containers of time whose function is to orient and measure event time in its linear progression. They can be viewed in two ways: from the outside, when they are seen as complete wholes or points (positions) on the line of time, or from the inside, when they are perceived as wholes consisting of smaller parts, discrete or contiguous. E.g. in the expression *days of the week*, *day* is thought of as a single, undivided unit of measurement, but in the sentence *A day has only twenty-four hours*, it is evoked as a container consisting of twenty-four smaller discrete parts, the hours. Since the reality of time involves a temporal succession of three contiguous parts: the beginning, middle and end, time units conceived as containers can be viewed as possessing these three parts. Thus, when a time-substantive is represented as a container, one can further specify whether the time it contains should be viewed from the beginning, middle or end.

In the ideal cognitive model (ICM) of events proposed by Langacker (1987[1993]:213), adverbials, because of their passive, peripheral status with respect to the developing action chain, constitute elements of what he calls "the setting".[3] Describing time adverbials merely as elements of the event's setting, however, produces a very general and necessarily over-simplified view of the time they denote. A more detailed representation, taking account of the form differences in these adverbials has been proposed by Gallup (1995) within the framework of Guillaume's theory of grammatical meaning.

Gallup (1995:44) considers time adverbials as lexical units which provide an extrinsic temporal measure of the action of the verb and views them as time containers positioned at a certain abstract distance from the time expressed by the verb. The distance between the time expressed by the verb and the time expressed by the time-substantive depends on the grammatical form of the substantive, which in Polish is furnished primarily by the substantive's case. According to the system proposed by Gallup for the Polish cases which mark time-substantives, the locative stands at the farthest distance from the time expressed by the verb, the nominative and the genitive are the closest, the instrumental and the dative occupy the middle position, and the accusative is farther from the event time than the instrumental and the dative, but closer than the locative. In other words, while the lexical meaning of the time-substantive identifies the concept of the time unit in question (e.g. that of *a day* as different from that of *an hour*), the case on the time-substantive specifies the manner in which the speaker views the unit.

Gallup (1995) outlines the particular semantic characteristic of each Polish case using Guillaume's notion of extensity.[4] Since case-marked substantives represent different extensities, case-marked time- substantives used in the function of adverbials produce different representations of extrinsic time, related to the event time expressed by the verb in different ways. According to Gallup's proposal for the general positioning of the extensity of time words throughout the Polish case system, the Polish cases impose the following basic visions of time on time-denoting substantives used in the function of adverbials: the nominative and the genitive represent a prospective view of time as seen from its beginning, the dative and the instrumental represent an imperfective view of time in progress, the accusative imposes a perfective view where time is seen as completed, and the locative represents time as one of the basic parameters of the container in which the event evoked by the predicate is located. The specific aim of this paper is to verify Gallup's theoretical proposal against a sample of the Polish data.

The Nominative

The Polish nominative fulfills the function of an adverbial of time only in nominal phrases where the time substantive is preceded by one of the two modifying particles: the adverbial particle of reduplication *co (every)*, as in examples (1a) and (2), or the particle *lada (any hour, minute, etc. in the time to come)* denoting something insignificant or an undetermined small quantity of something, as in example (3a), where it signifies a small undetermined amount of time in the nearest future[5]:

2. Ten antybiotyk należy zażywać **co cztery godziny.**
This antibiotic has to be taken **every four hours**-Nom.Pl.

3a. Śnieżyca zacznie się **lada minuta.**
The snow-storm will start **any minute**-Nom.Sg. (= in an undetermined number of minutes).

3b. * Ból minie **lada trzy minuty.**
* The pain will be gone in **any three minutes** - Nom.Pl.(= in an undetermined number of three minutes). *(examples from Greulich 1995)*

Gallup (1995:42) argues that since the word *co* is a "multiplying adverb", which has to co-occur with time substantives that accept plurality [*co* "can only modify a substantive noun that accepts plurality"] (see example(2a))[6], and since the idea of plurality in time implies the possibility of something happening at one moment or other in the future, the nominative of time preceded by *co* imposes a prospective viewpoint on events which are seen as if projected onto the future. Thus, even if the main verb is in the past tense (A past tense variant of example (1a) *Co dzień* ***spotykałem*** *ją w parku* is perfectly acceptable), the event modified by the *co+nominative*-adverbial will be viewed prospectively.

However, the "possibility-implies-a-prospective-viewpoint" reasoning does not apply to the nominative with the modifier *lada* because this particle can modify only singular nouns, rejecting all plurality on the head-substantive whether it contains a numerical determiner (*trzy minuty*) or not (*minuty*), as illustrated by example (2b). Even though the modifier *lada* does not imply reduplication, the *lada+nominative* adverbials can be said to encode a prospective viewpoint of the event's time because of the idea of immediacy in time contained in the particle's lexical meaning. *The Dictionary of Correct Polish* defines *lada* as "a word which combines with names of time units to indicate that something will happen in the nearest future" (Doroszewski 980:289). Events that are about to happen can certainly be considered as viewed prospectively.

The Genitive.

The genitive of time in example (1b) co-occurs with the declinable indefinite pronoun ("zaimek przymiotny" - Doroszewski 1980:247) *każdy (every)*, which, like the adverbial particle *co*, implies reduplication or multiplication. In their lexical meaning, time adverbials with the modifier *każdy* and the genitive are very close to the adverbials with *co* and the nominative singular. E.g. *co dzień*-Nom. of example (1a) can be substituted by *każdego-Gen. dnia*-Gen. with no easily detectable difference in meaning. Unlike the undeclinable particle *co*, however, which appears to have the part-of-speech characteristics of an adverb, the pronoun *każdy* declines, behaving as a typical adjectival modifier. An adjective modifier of some kind must always accompany the Polish genitive of time (see Bacz 1994), as illustrated by the examples in (4):

4a. **Pewnego pięknego dnia** przyszedł do nas telegram.
One-Gen. **beautiful**-Gen. **day**-Gen. arrived to us a telegram.
4b. Przyjadę do San Antonio **ósmego sierpnia**.
I will arrive in San Antonio [on] **the eighth**-Gen. [of] **August**-Gen.
4c. **Zeszłego roku** byłam w Europie.
Last (past)-Gen. **year**-Gen. I was in Europe.
***Przyszłego roku** zostanę w Kanadzie.
***Next (future)**-Gen. **year**-Gen. I will stay in Canada.
4d. Po kolacji Jan zjadł glony. **Następnego dnia** znacznie podniósł mu się poziom energii.
After supper John consumed some algae. **The next (following)**-Gen. **day**-Gen. his energy level increased considerably.

Unlike the particle *co*, the pronoun *każdy* occurs with substantives in the singular only. Yet, it does imply multiplication or reduplication, and thereby, the possibility of happening in the future: every evening of example (1b) presupposes recurrence of that time period and the future possibility of other evenings during which the subject will come with new problems. Thus, in spite of its incompatibility with the plural form, the genitive-marked time-substantive with the multiplying modifier *każdy* can be said to impose a prospective viewpoint on the evoked time.

The Polish genitive of time has to co-occur with an adjective-like modifier, as in (4a), (4b) and (4c), or with an ordinal numeral specifying the position of the day in a month, as in (4d). Since the genitive examples with adnominal adjectival participles referring to the past, such as *miniony (past), zeszły (past, last), ubiegły (gone-by)*, are common, while the genitive construction with the participial adjective *przyszły (future)*, referring to the future, is very hard to accept (4b), one could conclude that the genitive of time prefers a retrospective view of the event (see Bacz 1994). This conclusion appears to be wrong, however, not only in view of the existence of examples with the multiplying modifier *każdy*, which suggest a possibility of recurrence in the future, but also because of the counterexamples, quoted in (4c), furnished by the genitive-of-time constructions with the adjective *następny (next, following)* which indicate the position after in the temporal succession of time units and can thus be said to evoke a prospective view of time. The adjectives of the pair: *previous* (*poprzedni*) and *next (następny)* collocate with a larger group of time-substantives than the participial adjectives of example (4c) [cf. e.g. the acceptability of *następnego/ poprzedniego dnia* with the inacceptability of **ubiegłego/ minionego/ zeszłego/ przyszłego dnia*] because they locate time units in the positions before and after with respect to any relative point in time, whereas the lexical meaning of the participial adjectives denoting the past or the future imposes the before/ after ordering of time units with respect to one moment only: the moment of speaking.

The genitive of time in example (4a), with the indefinite pronoun modifier *pewien (certain)*, and in example (4b), with the ordinal adjective modifier specifying the number of the day in the month of August, denote moments of time that are seen globally being viewed more as positions in the temporal succession than as time containers. The singular events evoked by the sentences containing these adverbials are seen as happening at a particular time (as well as in a particular place). The genitive in example (4b) is accompanied by an ordinal numeral which has a particularizing function. The adjectival modifier *pewien (certain)* in example (4a) does not specify a definite numerical position of the day in time, but in spite of the notion of indefiniteness contained in its lexical meaning, it does point to a particular, singular event. In fact, none of the genitive examples in (4) consider the **possibility** of the event's actualization; they all suggest that the events whose time they qualify are seen as **factual**. Yet, on the grounds of the genitive's basic partitive meaning (see Guillaume 1992:59), it can be argued that the genitive of time accompanied by a particularizing adjective imparts, albeit not directly, a prospective vision of time. Just as the adnominal genitive in nominal phrases such as *krzyk sezonu (the hit ["cry"} of the season*-Gen.) or *bohater naszych czasów (the hero of our*-Gen.*time[s]*-Gen.Pl.) denotes a whole, the significate of the head-substantive is seen as a part of (the hit belongs to/ is part of the season; the hero belongs to/ is part of our time), so the event evoked by the verb can be seen as part of the particular time denoted by the genitive adverbial (e.g. the arrival of the telegram in example (4b) took up part of that *certain beautiful day* described by the genitive of time; the subject's arrival in San Antonio in example (4c) will constitute part of the eighth day of August, etc.). For a part to exist, a whole has to be conceived first, since there can be no representation of a part before the prior representation of a whole. A part originates in a whole, and in this sense a partitive view of the event time, imposed by the partitive genitive, implies that the event is viewed prospectively, i.e.from its original, starting point in time. In his view of "starting time" expressed by the Polish nominative and genitive cases in their adverbial-of-time function, Gallup combines the idea of origin and the idea of leaving behind, characteristic of the Latin ablative: "starting time is that in which and from which the event seems to proceed; it is a container that can be left behind" (Gallup 1995:44). This ablative shade in the meaning of the Polish genitive explains why the genitive is used in prepositional phrases of time with the prepositions *od (from)* and *z (out of, from)*, as in examples (4e) and (4f):

4e. Graliśmy w karty **od wieczora do rana.**
We played cards **from the evening-Gen. till the morning-Gen.**
4f. Stan pacjenta pogarszał się **z dnia na dzień.**
The patient's condition was getting worse **from day-Gen. to day-**Acc.

In example (4e) the genitive marks two time-substantives: the substantive *evening*, signifying a non-discrete time period between day and night whose limits are hard to determine, which is viewed as a container in which the event started and which was then left behind, and the substantive *morning*, denoting the earliest, contiguous period in the day, seen as a container that is about to be entered. In example (4e) the significate of the genitive-marked substantive *dzień* preceded by the preposition *z (from, out of)* is viewed as a time container left behind, and the event, i.e. the patient's worsening condition, is seen as proceeding in time up to the point of having entered another day, a movement signified by the accusative and the preposition *na (onto, into)*.

A prospective interpretation of the time unit in example (4g), with the genitive prepositional phrase with *za*, a preposition expressing a positioning behind, needs to be justified.

4g. Wróć do domu **za dnia.**
Come back home **during ["za"] the day-Gen.**

In this example the prepositional phrase as a whole signifies duration of the time period denoted by the substantive *day*. Because of the lexical meaning of the preposition *za*, the time container signified by *dzień* is seen as if entered from the point in time behind it. The view of this time unit is prospective but at the same time oriented backwards, in the direction opposite to the usual perception of progression in time. The time container here is entered from its end limit, and the event is represented as proceeding in the time container (in the usual direction). Since the phrase *za dnia* means "while the day still lasts, as it continues", the genitive of time here seems to include a notion of manner: "while the day lasts" implies "while there is still light".[7]

The Instrumental

The sentences in (5) represent the temporal uses of the Polish instrumental, the only Polish case that can express time adverbially on single substantives (see Bacz 1994). Unlike in Russian, where the instrumental of time is a productive adverbial construction with substantives denoting fixed periods of time, such as Lent or particular months of the year (see Janda 1993:169), the Polish instrumental of time appears to be restricted to a closed group of time-substantives denoting parts of the year and parts of the day. (The list includes the following most frequent uses: *wiosną = in the spring, latem = in the summer, jesienią = in the fall, zimą = in the winter; [bladym] świtem = at [the pale]* *dawn, rankiem = in the morning, dniem [i nocą] = [night and] day, [wczesnym] popołudniem = in the [early] afternoon, wieczorem = in the evening, nocą = by night.*). According to the order of the Polish cases in the event proposed by Gallup (1995:45) the instrumental imposes a progressive view of time. This hypothesis finds some support in the three language facts illustrated by examples (5a), (5b) and (5c): 1. The instrumental of time in its adverbial function can be used in the plural, a fact which suggests repetition and therefore also continuity (5a); 2. It often co-occurs with verbs in the imperfective aspect (5b); 3. When used in the singular, it prefers to mark time-substantives which denote contiguous periods of time (*wieczorem*, *późnym popołudniem*, *wczesnym rankiem*), whose most important characteristic appears to be duration and extension in time, rejecting the discrete time units expressing measure (**godziną*, **sekundą*) and conventionally distinguished orientation points in time (**północą*, **południem*) (5c):

5a. To dziecko **godzinami** wysiaduje przed telewizorem.
This child sits *(imperfective)* in front of the t.v. **[for] hours**-Instr.Pl.
5b. Jan **pisuje/ pisze** te piękne listy **wieczorami**.
John writes (*iterative imperfective*) these beautiful letters **[in] the evening[s]**-Instr.Pl.
5c. Jan zawsze **budzi się** wczesnym **rankiem**.
John always **wakes up** *(reflexive,imperfective)* **[in]** the early-Instr. **morning-**Instr.
6a. Wróg **zaatakował nocą.**
The enemy **attacked** *(perfective)* **[at and by] night-**Instr.
6b. Ten człowiek żyje **przeszłością.**
This man lives **[in/for/by means of]** the past-Instr.

Sentence (6a) appears to constitute a counterexample to the general characteristic of the instrumental as a case associated with an imperfective view of time, for the verb here is perfective *(zaatakował = attacked)* and the time-substantive *(noc = night)* can be viewed as a discrete unit denoting the period of time between the sunset and the sunrise. An explanation of the "unorthodox" behaviour of the instrumental in example (6a) seems to lie in the composite and transitional nature of this case here. Just as in example (6b), which is perhaps more representative of the phenomenon, the instrumental of time combines with the instrumental of manner, resulting in a more peripheral (distant from the prototype, in the cognitivist terminology) signification that admits of departures from the central use. In example (6a) the manner-related fact of the enemy attacking under the cover of the night while it lasted, i.e. when it was still dark, is clearly more important than the fact that the night can be characterized as a discrete time container. The limits of the time period do not matter here, but its extension in time appears significant.

The Locative

7a. Jan (przy)jechał **nocą.**(= kiedy panowała/ trwała noc)
John (arrived)travelled **at night-**Instr. (= while the night lasted)
7b. Jan (przy)jechał **w nocy.**(= w ciągu nocy)
John (arrived) travelled **at night-**Loc. (= during the night)

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In the pair of examples given in (7) the instrumental of time is juxtaposed with the locative. When compared with the locative, which, in Gallup's words, always signifies a place and which "presents lexical time as if a place containing the event" (1995:44) thus creating the image of "a perfect container which cannot be entered and cannot be left behind", the instrumental of time appears not to evoke the container metaphor at all. Example (7b), with the locative, can be paraphrased by the phrase "during the night" while this paraphrase would not be adequate for example (7a), with the instrumental. When marked by the locative case (7b), the substantive *noc (night)* imposes the view of the activity of John's coming as completely contained within this time period; when marked by the instrumental (7a), the same substantive emphasizes the continuity of the night and its extension in time, and the time container image seems absent from the picture. The difference between examples (7a) and (7b) well illustrates the difference between Gallup's "imperfective or continuing" time, as expressed by the Polish instrumental and the Polish dative, and the perfect container image, associated with the Polish locative of time.

The Dative

Occurrences of the Polish dative in the function of a time adverbial are limited to the prepositional phrases with the preposition *ku* signifying "direction or proximity of something in space or time" (Doroszewski 1980:281). When used in the function of a space adverbial, the construction easily accommodates substantives denoting definite points in space (*ku domowi, ku zachodowi*), but the *ku*-governed substantives of time appear to be restricted to those non-discrete time words that signify duration and continuity with undetermined boundaries (as the substantive *evening* in example (1c)). The compatibility of the Polish dative with the imperfective vision of time is illustrated by examples in (8), where the imperfective gerundive form *świtanie (dawning* of the verb *to dawn)* in (8a) is preferred, in the dative construction with *ku*, to the more concrete and punctual substantive *świt (dawn)* in (8b):

8a. Miało się **ku świtaniu.**
It was very close **to dawning**-Dat.
8b. * Miało się **ku świtowi.**
* It was close **to dawn**-Dat.; it was almost dawn.

(examples provided by K.Korżyk)

In the system of extensities characterizing the Polish cases used in the function of time-adverbials proposed by Gallup, the accusative signifies "final" or "perfective" time, time "in which and into which events terminate,...a container into which an event can penetrate" (1995: 44). Time-substantives used in the adverbial function always denote discrete and measurable time units: they are preceded by numerals (as in example (9a)) or by the adjective *cały (whole)* which emphasizes the completeness of the denoted time unit (*a whole night* of example (1d)), and they specify the measure of the time accomplished or used up "by the exercise of the action taking place" (Gallup's formulation).

The Accusative

Polish adverbials with the accusative of time can be expressed by the accusative-marked substantive with a numeral or the modifier *cały (whole)* or *pełny (whole, full)*, or by the accusative-marked substantive with the preposition *przez (through, throughout)*, whose role is to intensify the impression that "the end has been reached by passing through a continuous period of time", as illustrated by example (9b):

9a. Konferencja będzie trwała **trzy dni**.
The conference will last **three days**-Acc.
9b. Konferencja będzie trwała **przez trzy dni**.
The conference will last **throughout** [the period of] **three days**-Acc.

As Gallup observes, only when we imagine time as if at the end of the event, can we get a completed, i.e. a retrospective view of it. This observation explains the perfective vision of time in the expression *jakiś czas temu (some time ago)*, used in example (10). This common expression of time consists of the accusative-marked time-substantive and the dative-marked neuter personal pronoun *temu (this*-Dat.*)* indicating the moment from which the time unit is being viewed and measured backwards. The accusative case signals that the moment indicated by the pronoun *temu* is viewed as the end limit of the time measure expressed by the substantive:

10. Byłam w Krakowie **dwa lata temu.**
I was in Kraków **two years**-Acc. this moment-Dat. (two years ago).

Conclusions

1. The random selection of data considered in this paper supports Gallup's 1995 proposal for a systematic positioning of the Polish cases marking adverbials of time from the beginning of the event to the end of it in the order: nominative, genitive, instrumental, dative, accusative, locative.

2. The meanings proposed for the Polish cases by this system should be treated as idealized generalizations, for details can and must differ in every particular usage, as they depend on the composition of the lexical meaning of each case-marked substantive. The notions of extension and continuity in time versus discreteness and measurability in time, present in the lexical meaning of time-substantives, appear to play an important role in the choice of case for every adverbial-of-time usage.

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NOTES

1. Research presented in this paper has been supported by the Canadian SSHRC grant 410-92-1328.

2. The vocative, which deictically locates the addressee of the speech act in time and space, might be considered as an adverbial of time related to the instant of speaking. While it defines the time of the speech act, it has no bearing on the representation of time evoked in the speech act.

3. "responsible for the peripheral status of temporal and locative adverbs, I suggest, is the conceptual naturalness of construing times and locations as settings" (Langacker 1987[1993]:213).

4. According to Gallup's interpretation of Guillaume's notions of _extension_ and _extensity_, proposed in his 63e Acfas paper _Extensity: the Criterium for Discovering the Limits of Noun and Verbal Phrases_ (Chicoutimi 1995), extensity of a lexical item is its actualized extension, imposed on the word's comprehension (a rough equivalent of lexical meaning) by the word's grammatical form. Lexically related words representing different parts of speech vary in their extension (as in the series: _dzień_-substantive, _dzienny_-adjective, _dziennie_-adverb), whereas members of the grammatical paradigm within the same part of speech (e.g. the seven cases of the substantive _dzień: dzień, dnia, dniu, dzień, dniem, w dniu, o dniu_) differ in their varying extensities.

5. For discussion of the Polish particle _lada_ and illustrative examples see Greulich 1995.

6. Expressions with non-pluralized uncountable time words such as e.g. * _co przyszłość_ = * _every future_, or *_co teraźniejszość_ = * _every present_ are impossible. It should also be noticed that the particle _co_ occurs with a plural head-substantive only when an additional quantitative (preferably numerical) modifier is present, e.g. _co trzy minuty (every three minutes), co dwa miesiące (every two months)_, but not *_co minuty (*every minutes)_, *_co miesiące (*every months)._

7. See Bacz 1995 for discussion of other _za+genitive_ examples.

COMPUTATIONAL ANALYSIS OF OLD ENGLISH LEXICAL COHESION

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1. *Method.* The aim of this paper is to describe the methods and results of an experimental procedure for determining the information structures of clauses in modern English and Old English texts. The concept of 'information structure' is taken to mean what it means both within systemic-functional linguistics and within the Prague School theory of 'communicative dynamism'. In systemic-functional linguistics the unit of information is realized by the 'tone group', which normally maps onto the clause. The information unit, and thus also the clause, normally has two consecutive and ordered regions, 'given information' and 'new information' (Halliday 1994:295-6). In the theory of communicative dynamism, the unit of information is also the clause, which has two regions, 'theme' and 'rheme', closely analogous to 'given' and 'new'. However the theme/rheme distinction differs from the given/new distinction in a number of important ways, particularly in that the regions need not be consecutive or ordered (Firbas 1992:71 ff.).

The procedure has the following steps. A text of some convenient length is selected. Its formal items are classified as either grammatical or lexical. The lexical items are abstracted into the form of a conceptual graph. The graph is organized on the principle of semantic relations, so that each contiguous pair of lexical items has a common recognizable semantic relationship, such as hyponymy, meronymy, antonymy, etc. The graph forms a continuous network, enabling a traversal from any one lexical item to any other. Both the original text and the conceptual graph are submitted to a computer process as data. The process associates each lexical item in the text with the cost (i.e., distance) of traversing the conceptual graph from the graph location of that item to the graph location of each of the preceding items in the text up to the limit of a selected span. The 'givenness' of an item in the text is interpreted as the degree of semantic proximity between it and all preceding items in the span. For each preceding item, this is the inverse of the cost of the traversal to that item according to the formula g(ivenness) = 1 / c(ost). The computer output consists of an interlineation of the original text with numerical values representing for each lexical item its aggregate givenness with respect to all the preceding items in the span (Cummings 1995a and forthcoming).

Underlying this procedure are a number of assumptions. Perhaps the most important is the assumption that the given/new or theme/rheme distinction is actually a cline equivalent to the degree of net lexico-semantic cohesion.

Although both the systemic-functional theory of 'focus of information' and the Prague School theory of communicative dynamism regard textual cohesion as an important factor in establishing information structure (Halliday 1994:296-7; Firbas 1992:21 ff.), neither of these approaches makes it equivalent to givenness (Cummings 1995b). Another important assumption is that a text of any convenient size represents a closed system of lexical semantics. A further assumption is that lexico-semantic cohesion is not factored by linear distance within some ideal span of preceding items, but does not operate beyond the boundary of that span. Another assumption is that a conceptual graph model for the lexico-semantics of the whole text is an appropriate knowledge base for the lexico-semantics of the span alone -- as opposed to the untried alternatives of separate graph models for each span, or a single graph model for the whole of English lexis.

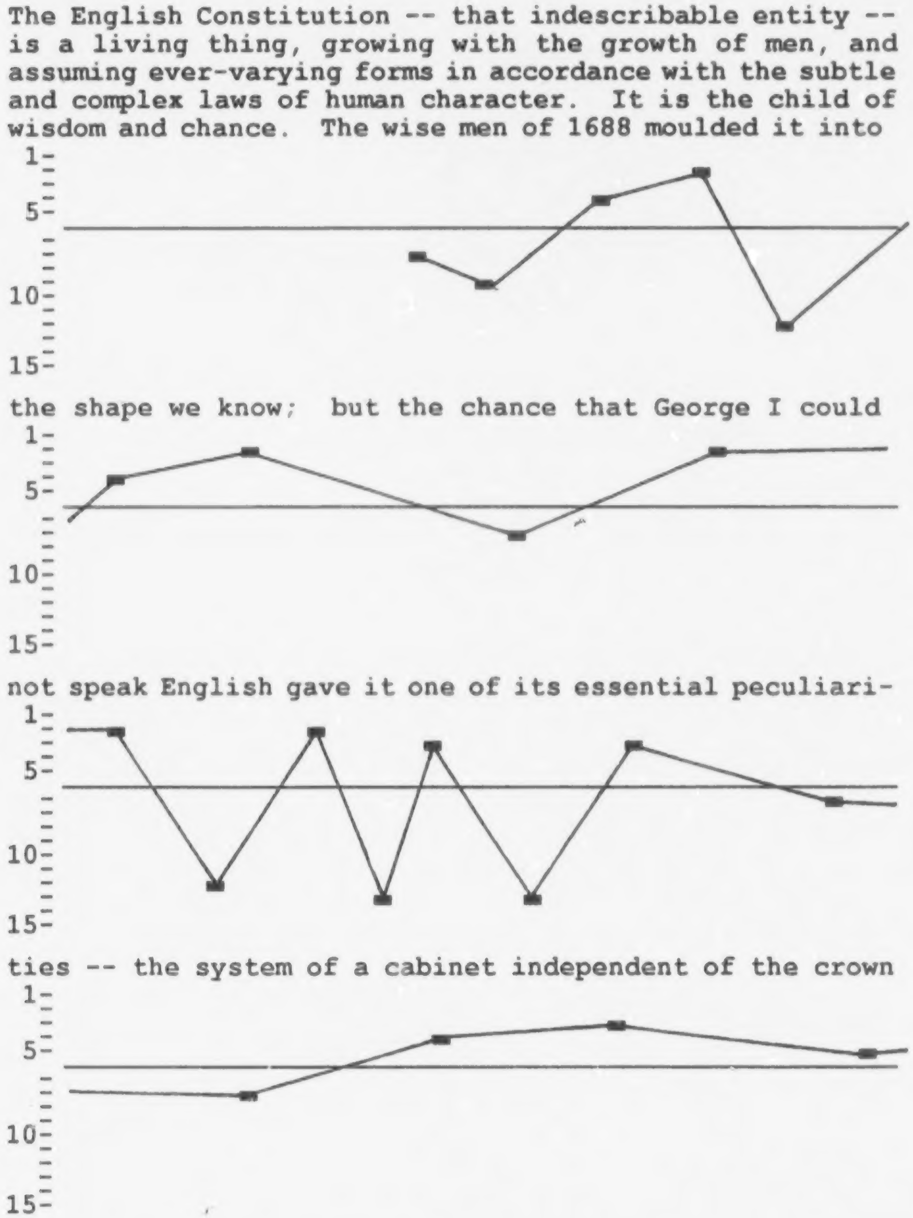
It is also necessary to be aware of some particular details in the method in order to fully comprehend the form of the output. All pronoun forms with endophoric reference (Halliday and Hasan 1976:33) and deictics functioning as such pronouns are replaced in the input text by their antecedent lexis. Other grammatical items are not processed but remain in the output. The costing of the graph is on a numerical scale, with the identity relationship equal to 1, any contiguous relation equal to 2, and any further step in traversal equal to 1. The net cost of any traversal is simply additive. However, the cost in the equation $g = 1 / c$ is raised to the power of some exponent ≥ 1 and ≤ 2, to permit making the scale of the output values exponential and compress the range of values interpreted as new information. The output figures for each lexical item include both a value for the net givenness and a value for the average givenness, i.e., the net value divided by the number of items in the span (Cummings 1995a and forthcoming).

The interpretation of numerical results always involves a comparison with Prague School and/or systemic-functional methods. The theme/rheme and given/new distinctions in these two approaches are binary, so the results are scrutinized to find a point on the scale of values output which represents the boundary between the two regions. This point is identified simply as the most plausible point of transition from the viewpoint of these two alternative linguistic models. None of the three approaches to the same text necessarily achieves the same result, so the designated given/new boundary simply minimizes discrepancies with the intuitive linguistic analyses.

2. *A modern English text.* Figure 1 shows a specimen text in modern English, and the results of analysis for one sentence recast in the form of a continuous chart of values. The output values are represented on a scale on the lefthand side of the chart, and are the average values for degree of givenness. Consisting of one paragraph from Lytton Strachey's *Queen Victoria* (1921:220-1), this text digressively rhapsodizes on the mystique of the English constitution. It was selected because it has served successfully as the basis of several systemic-

functional treatments of theme/rheme (Fries 1983:123-4, 134-5, 140-2; 1993:70-99; Martin 1992:434-7).

Figure 1: chart of semantic connexity for Strachey (1921) 220$^{19-24}$



The English Constitution -- that indescribable entity -- is a living thing, growing with the growth of men, and assuming ever-varying forms in accordance with the subtle and complex laws of human character. It is the child of wisdom and chance. The wise men of 1688 moulded it into the shape we know; but the chance that George I could not speak English gave it one of its essential peculiarities -- the system of a cabinet independent of the crown

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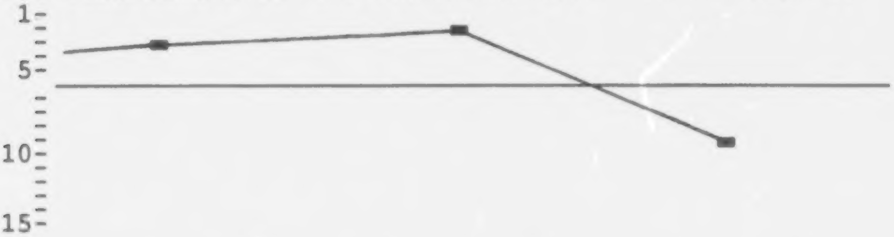


and subordinate to the Prime Minister. The wisdom of Lord Grey saved it from petrifaction, and set it upon the path of democracy. Then chance intervened once more. A female sovereign happened to marry an able and pertinacious man; and it seemed likely that an element which had been quiescent within it for years -- the element of irresponsible administrative power -- was about to become its predominant characteristic and to change completely the direction of its growth. But what chance gave, chance took away. The Consort perished in his prime; and the English Constitution, dropping the dead limb with hardly a tremor, continued its mysterious life as if he had never been.

The whole paragraph consists of 180 running words, of which 116 items were deemed to be lexical. The range of average values for the givenness of these items is from 0.01 to 0.20 rounded off to the nearest hundredth. Lexis in sentence 3 (Figure 1) has a range from 0.02 to 0.13, and the scale should be read as hundredths. The most plausible boundary between the given and new regions of the whole text is between 0.06 and 0.05, and this is marked in the figure with a horizontal. The first lexical item is not analyzed since it has no antecedent. Of the remaining 115, 40 items or 35% are in the given range of 0.20 to 0.06, and 75 or 65% are in the new range of 0.05 to 0.01.

If the results are compared with a reasonable spoken performance of the text, interpreted in terms of the systemic-functional theory of focus of information, the computer analysis is almost perfectly plausible. The first sentence of 18 lexical items is excluded from this assessment because the reference span for most of it is so far below 30 (a figure selected because of its good results with other texts). Starting with the second sentence, the alternation of given and new lexis follows the wave-shape predicted by theory, with values in the given range for most grammatical subjects and all pronoun forms. The single instance of an implausible reading is in sentence 3. Its first independent clause can be interpreted as a single tone group with falling tonic on 'know'. The chart implies that the second independent clause has three tone groups, with falling tonics on 'speak', 'essential' and 'Prime Minister'. The last of these, as in the case of 'know', is simply the end of the stretch of new information for its clause. But 'speak' and 'essential' represent the termination of new information by a return thereafter to given information in a non-pronominal form before the end of the clause, and are deemed to be tonic-bearing on those grounds (cf. Halliday 1994:297-8). This is at least plausible for 'speak' since some reader could take 'English' to be given from the preceding 'English Constitution', ignoring, as the conceptual graph does, the difference in sense. But no reasonable spoken performance would distribute the tonic onto 'essential' instead of 'peculiarities'.

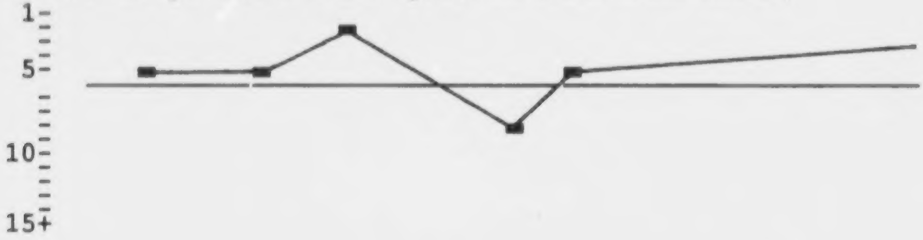
3. *An Old English prose text.* To try out the same procedures on a text drawn from a remote historical dialect of English, the first two paragraphs were selected from Ælfric's Old English *Sermo in Æpiphania Domini* (Godden 1979:19-28; as Thorpe 1844-6:II, 36-52). Like the preceding specimen, the text has previously been analyzed on a purely intuitive basis (by Svoboda 1981). The results of analysis for one sentence are shown in chart form in Figure 2. (My modern English gloss is placed above the Old English text.)

The whole text consists of 256 running words, of which 151 items were deemed to be lexical. The range of average values for the givenness of these items is from 0.01 to 1.00 rounded off. Lexis in sentence 2 (Figure 2) has a range from 0.02 to 0.21, and end of the scale should be read as '0.15 or higher'. The most plausible boundary between the given and new regions of the whole text is again between 0.06 and 0.05. Of the analyzable 150 lexical items, precisely 50% are in the given range of 1.00 to 0.06, and 50% in the new range of 0.05 to 0.01.

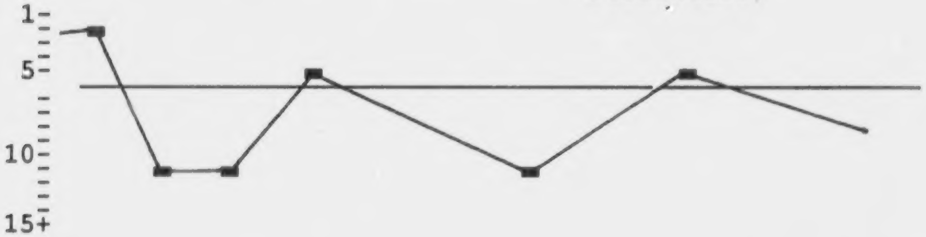
Comparison of the results with a spoken performance is subject to the qualification that the performance will be the reader's interpretation of the text as if it were modern English. Such a performance will at least reveal the reader's instinct for the bracketing of new information. Excluding the first sentence of 22 lexical items, the results of computer analysis are almost as plausible as those for the previous text. Just 4 out of 129 analyzable items have values that appear to put them into the wrong region, for an error rate of 3%. Again, the alternation of given and new lexis follows the wave-shape predicted by theory, with values in the given range for most grammatical subjects and all pronoun forms. Sentence 2 (Figure 2) has one of the errors. The sentence has one principal and three subordinate clauses. The first tone group is the topic, with falling tonic on *Sunu* as the end of new information. The second tone group is the following embedded subordinate clause with falling tone on *mann* as the last lexical item. The third tone group ends with *bydel* as the end of new information and the fourth tone group is *Iohannem þone Fulluhtere* all by itself, both with falling tones. The error is in the fifth tone group, with a reading of *mannum* as given, which implies that new information begins and ends in this second subordinate clause with *to-cyme*, an implausible locus for the tonic, which should not occur until *cyðan*, as the last lexical item in the clause. The last tone group is mapped in normative fashion onto the last subordinate clause, with final falling tonic on the last lexical item *Cyning* (given values for modifiers like *godcundan* appear to have no consequence).

Figure 2: chart for Thorpe, CH, II, 36$^{24-27}$

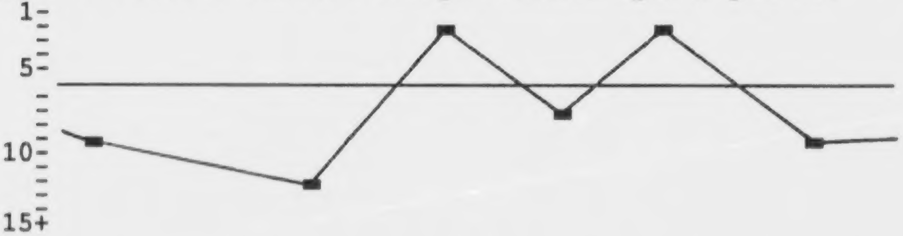
that almighty god's son when he man to be desired
Se Ælmihtiga Godes Sunu, þaða he mann beon wolde,



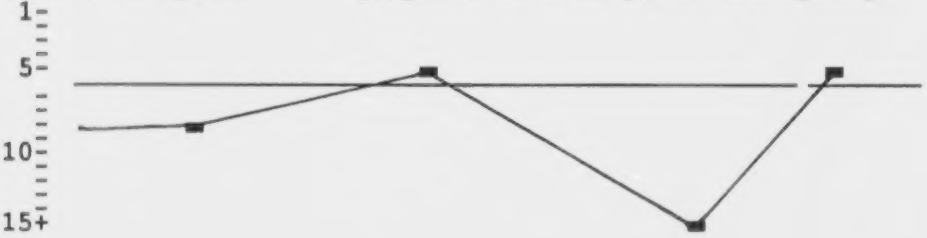
then sent he his messenger before him john the baptist
ða sende he his bydel toforan him, Iohannem þone
Fulluhtere,



that he might crist's coming to men announce that they
þæt he sceolde Cristes to-cyme mannum cyðan, þæt hi,



through that messenger might believe in the divine king
ðurh ðone bydel, gelyfdon on ðone godcundan Cyning.



4. *An Old English poetic text.* A second Old English text was taken for analysis from the poem *The Battle of Maldon*. The passage consisting of lines 130-158 (Gordon 1960:51-3) is notoriously difficult for neophytes. In describing the personal combat between Earl Byrhtnoth and a viking warrior, the narrative switches rapidly back and forth between participants, naming them each time with some new epithet, and thus utterly confusing the first-time reader. The results of analysis for one sentence (5) from this narrative are shown in chart form in Figure 3.

The whole text consists of 204 running words, of which 137 items were deemed to be lexical. The range of average values for the givenness of these items is from 0.01 to 0.16 rounded off. Lexis in sentence 5 (Figure 3) has a range from 0.01 to 0.13. The most plausible boundary between the given and new regions of the whole text is fuzzy, and could be anywhere between 0.06 and 0.03. Of the analyzable 136 lexical items, 44 or 32% are in the range of 0.16 to 0.04, and 92 or 68% in the range of 0.03 to 0.01.

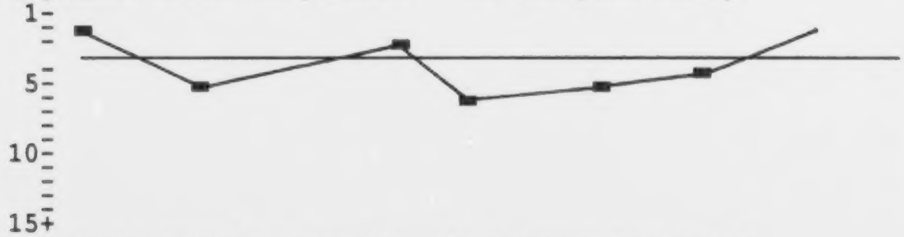
Compared with the results for the previous two texts, the computer analysis of this text appears at first to be extremely improbable. Excluding the first three sentences comprising 25 lexical items, the analysis puts 20 out of 112 analyzable items into the wrong region, for an error rate of 18%. The expected wave-shape alternation of given and new is seriously disturbed, with many items, including grammatical subjects, placed in the new information region contrary to intuition. In Figure 3, sentence 5 has the upper margin of the fuzzy given/new boundary marked to show this tendency. Items which are placed counter-intuitively into the new information region include *se guðrinc, wicing, francan, hysses* and *færsceaðan*, all of which refer to participants already established 'on scene'. An explanation for this result comes readily to hand. It was noted that the text is a good illustration of Old English poetic elaboration, in which the same participant or process is referred to by some new attribute or metaphor at each successive mention. The conceptual graph is organized on the surface semantics of the lexis, and so reads out many of these new mentions as new information.

5. *The Old English poetic text and graph revised.* To demonstrate this point, a further experiment was performed on the same text. The input was revised to eliminate all the metaphorical redescriptions of participants and processes. The following partial list of equivalents shows that each major participant or process was now consistently referred to by the same lexical token: *wiges heard, ceorl, særinc, wicing, hysse, færsceaða, dreng* by *særinc* (seaman); *wæpen, gar, spere, franca, daroð* by *wæpen* (weapon); *beorn, eorl, hlaford, guðrinc, fyrdrinc, man, thegen, theoden* by *eorl* (earl); and *gan, wadan, fleogan, gewitan, faran* by *wadan* (go). In addition, the conceptual graph of semantic relations was redrawn to eliminate participant and process lexis which no longer appears in the revision. The results of analysis for the equivalent sentence 5 is shown in chart form in Figure 4.

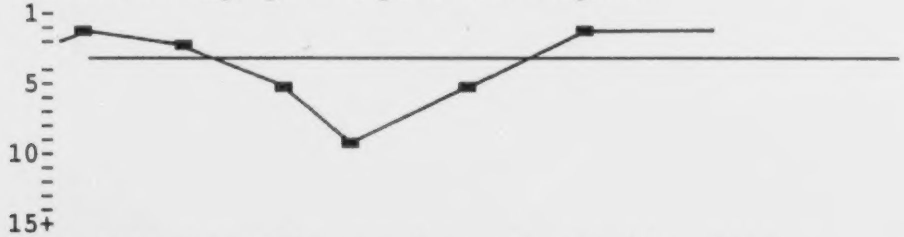
The whole text now consists of 203 running words, of which 136 items are

Figure 3: chart for the Battle of Maldon 138-142.

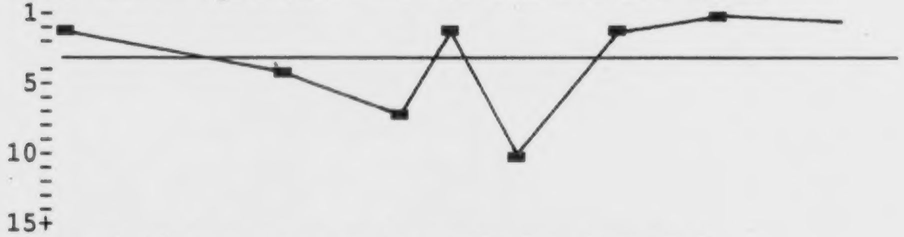
Angered was the warrior; he with spear pierced
Gegremod wearð se guðrinc; he mid gare stang



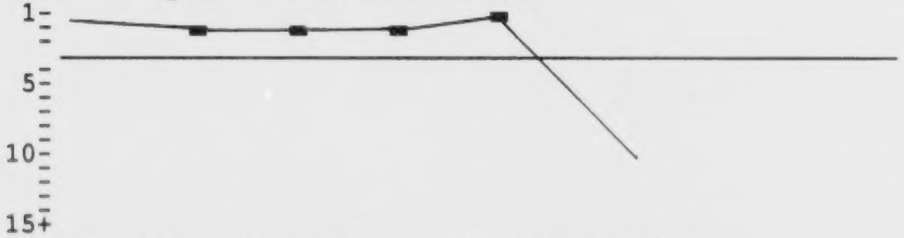
the bold viking, who him that wound had given.
wlancne wicing, þe him þa wunde forgeaf.



Experienced was the warrior; he let his spear go
Frod wæs se fyrdrinc; he let his francan wadan



Through that young man's neck, hand guided
Þurh ðæs hysses hals, hand wisode



so that he in that raider the life reached.
Þæt he on þam færsceaðan feorh geræhte.

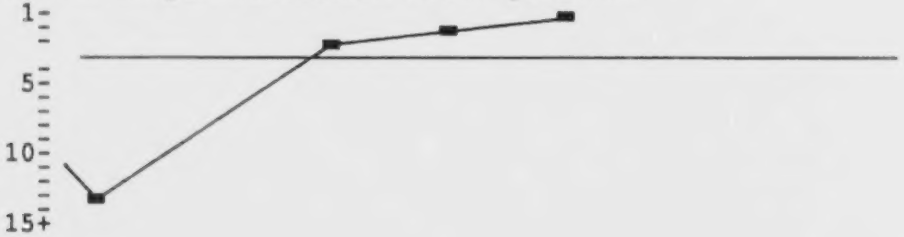
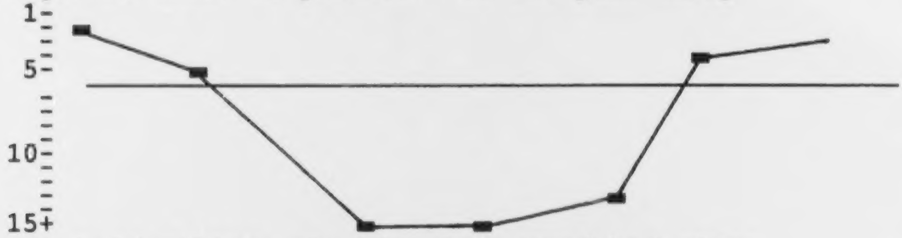
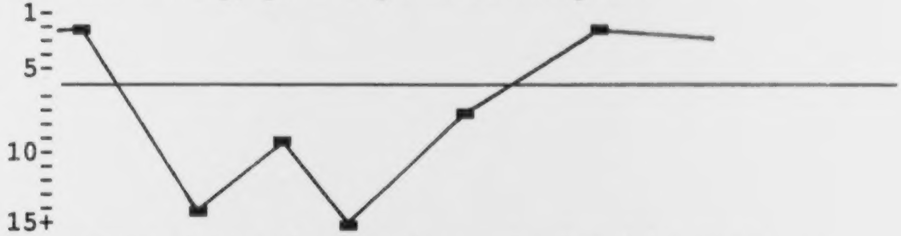


Figure 4: chart for the Battle of Maldon 138-142.

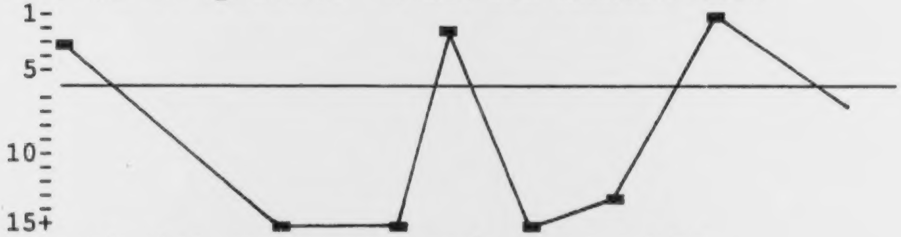
Angered was the warrior; he with spear pierced
Gegremod wearð se guðrinc; he mid gare stang



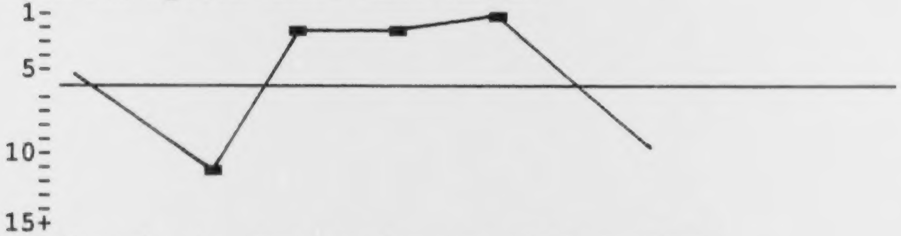
the bold viking, who him that wound had given.
wlancne wicing, þe him þa wunde forgeaf.



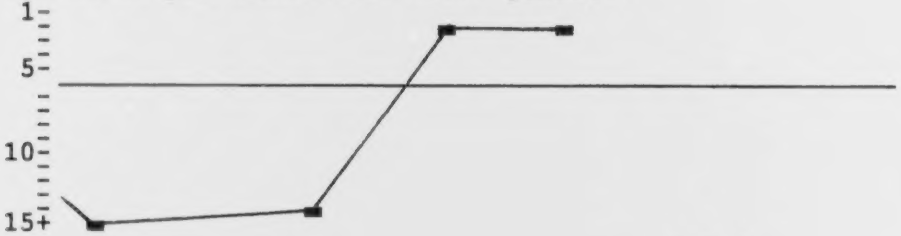
Experienced was the warrior; he let his spear go
Frod wæs se fyrdrinc; he let his francan wadan



Through that young man's neck, hand guided
Þurh ðæs hysses hals, hand wisode



so that he in that raider the life reached.
Þæt he on þam færsceaðan feorh geræhte.



lexical. The range of average values for the givenness of these items is from 0.01 to 0.25 rounded off. Lexis in sentence 5 (Figure 4) has a range from 0.01 to 0.22, and the most plausible boundary between the given and new regions of the whole text is again between 0.06 and 0.05. Of an analyzable 135 lexical items, 52 or 39% are in the given range of 0.25 to 0.06, and 83 or 61% in the new range of 0.05 to 0.01.

Excluding the first three sentences, the results of the computer analysis are now as plausible as those for the Strachey and Ælfric texts. Just 3 out of 112 analyzable items (including *wlancne* in sentence 5) have values that appear to put them into the wrong region, for an error rate of 3%. Again, the alternation of given and new lexis follows the wave-shape predicted by theory and consonant with intuition, yielding values in the given range for most grammatical subjects and all pronoun forms. In sentence 5 (Figure 4), all references to the two combatants and to Byrhtnoth's spear are markedly given, which is hardly surprising since each successive reference to these participants is now interpreted by the computer as an identity relation. By contrast the process *wadan* remains appropriately within the stretch of new information, since previous mention falls outside the span. The lexico-semantic method of interpreting information structure must therefore recognize the limits in the contribution made by surface semantics to the formation of text.

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JAPANESE AND KOREAN BASIC COLOR TERMS

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0. Introduction

The purpose of this paper is to prove the basic color terms of Japanese and Korean are derived from the common source, and to show another proof that the two languages are closely related.

Among the basic color terms of red, blue, yellow, white and black of Japanese and Korean, Martin has proven the correspondences between Japanese(henceforth J) aka and Middle Korean(MK) pAlk(red)(Martin, p.239, 178 RED), and J awo and MK pAlA-(blue/green)(Martin, p.232, 94.GREEN), leaving the other three unproven. Swadesh's basic core vocabulary of a hundred words also lists five color terms: red, green, yellow, white and black(Quotated from Renfrew, p.114). As J awo and MK pAlA- means 'blue' or 'green' as seen in the examples of J awo-zora(blue sky), awo-ba(green leaves), or J awo(green [light], a traffic signal), we believe our selection of the basic colour terms matches Swadesh's list.

Thus, our task is to prove the correspondences of the remaining three color terms of Japanese and Korean: yellow, white and black, of which we have proven the cognation of J kuro and MK kem-(black) by establishing two supplementary laws u/E and r/m at the 21st LACUS forum held in Vancouver in 1994.

Hence, at the 22nd LACUS forum, we aim to prove the correspondence of the remaining two color terms of Japanese and Korean, viz., 'yellow' and 'white' by demonstrating enough evidence to support our assumption, and establishing supplementary laws k/n, s/h and r/y, plus a doublet law n/k for k/n.

1 Correspondence between J ki and MK nolah(yellow)

J ki(yellow) has its variants, ko and ku found in the compound forms of kogane and kugane(gold). We can morphoanalyze them as ko/ku(yellow)-kane (metal) from the similar examples with color terms such as aka-gane(copper), siro-gane(silver), and kuro-gane(iron), each literally means 'red metal', 'white metal' and 'black metal'.

Our assumption is that J ki(yellow) is also a variant of Japanese color term ni(yellowish red) with /n/> /k/ shift. In order to support our claim of this shift, we present some examples of Japanese /n/>/k/ shift: inasu =ikasu(to let go); nagu =kaku(to cut) cf. kubi wo kaku/kiru(to behead); nasuru(to smear) =kosuru(to rub); naraberu(to line up) = kuraberu (to compare); nuku= kogu(to pull out); nuku = koku(to emit); nipopi = kapori(smell); nata(hatchet) = katana(sword) cf.MK kal(sword), MK nAlh (blade); namu(to lick) = kupu(to eat); nuno(cloth) = kire(cloth)/ kinu (clothes); nediru = koziru(to screw); JD nira=kurage(jellyfish); nayamu

= JD kuyamu(be troubled); ni = JD ke ([objective case marker] to); no = JD ga(possesive case marker] of); noseru =JD nokkeru =JD kekeru(to give a ride).

Another evidence for our claim is that for the transcription of J pani(-pu)(clay) in the Manyoushu, Chinese characters with the meaning of red, or yellow is used as a modifier for the Chinese 'mud'. In the olden days, the Japanese used some clay for paint, which fact also testifies that J pani(clay) and J beni(rouge) are doublets. The morphemes of pani (clay) and beni are analyzed as pa/be(prefix)-ni(*clay/mud). Their stem *ni(*clay/mud) is also found in J nipa(garden) and its variants in J nawi(earthquake), J no(field), J ta(rice field),J tuti/doro(mud) etc.

We assume that MK tta(ground) is the Korean cognate. And in MK matang (garden) and MK patang(land), we find the same stem *nV/*tV, though nasalized and each prefixed either with ma- or pa-.

And we need to establish a supplementary law k/n to Martin's laws to prove the correspondence between J ki and MK nolah-(yellow) as his laws are not ready to correspond Japanese initial consonant /k/ with Korean /n/. We believe the following examples will support our claim and establish a supplementary law k/n.

1) J ka = MK nal(day) k/n-17-12b. cf. J itu-ka(5th day/ 5 days), nano-ka (7th day/ 7 days), etc.
2) J karu(to cut)= MK nAlh(blade) k/n-21d-12b + J verb ending-ru/ K suffix -h. cf. J koru/kiru(to cut).
3) J kagi = MK naks(hook) k/n-17 + J suffix-ki/K -k + genetive particle -s cf. J ko(hook); MK nak-si-cwul(fishing line), nak-si-pap(beat)
4) J kake =MK naki(bet) k/n-17-4a-16a
5) J kusai = MK nwuli(to smell) k/n-19-14c-21dd + J adjective ending -i
6) J kaburu = MK nip-(to cover) k/n-21dd-1b-19c + J verb ending -ru.
7) J kimi(lord) = MK nim (master) k/n-15-2a-22

We could add more examples of correspondence by establishing supplementary laws for the following: J kama = MK nat(sickle); J kakari-mono = MK naks(tax) cf. J tikara, Manchu(henceforth Ma) tifun; J kapa = MK nali (river) cf. MK kol(valley); J okiru = MK nil-(to rise); J kuni= MK nalah (country), etc.

We can also observe the /n/>/k/ shift in Korean: MK ni- = K ka-(to go), K kay(inlet)= K nay(river), K kepok= KD namaksii(tortoise), K kolani =KD noli(elk), MK nAl=KD khali(blade), K nwuteki=KD kicekwu(rags), K kempwul =KD nengkhwul(dry grass), MK nalah(coutry) =MK kolh(county)/ koAl(id.), etc.

With such evidences, we can prove the correspondence between J ki and MK nolah-/nwuleh-(yellow) k/n-20c-12b-29 + K suffix-h. And Middle Korean words noskulAs(copper bowl), nossola(copper tray), nosswul(copper spoon), and noscyukey(copper rice serving spoon) have no-, which originally most probably meant 'red' or 'yellow' judging from the morphoanalysis of MK nos(brass) as it is said to be an ellipsis of nossoy(lit. yellow iron).

2 Doublet Correspondence law n/k

At the 21st LACUS forum, we have postulated the Japano-Korean doublet correspondence, and established supplementary laws m/r and r/m. The procedure of establishing a doublet correspondence, we believe, increases the reliability of the newly established supplementary laws as it helps us to double-check the existence of the claimed shift.

With the same prospect, we examine the reliability of the supplementary law k/n we have just established above, and the doublet correspondence law we are about to present below.

1) J naga- =MK kil-(long) n/k-21dd-12d-22
2) J nara-su= K kolu-(to level) n/k-18a-11-21f + J verb ending -su.
3) J narabu =MK kAlp-(to line up) n/k-21d-11-22-1b + J verb ending -u.
4) J nirami(to glare at)= MK kAlb-(to line up) n/k-20d-11-23-1c + J verb ending. cf. MK kAlol(enemy).
5) J nomi =MK pskul(chizel) K prefix ps-+ n/k-21cc-m/r-15d. With regard to m/r cf. Ishii, Correspondence between Japanese kuro and Korean kem (black), The 21st LACUS Forum. J kiri(gimlet) will also be cognate with MK pskul(chizel).
6) J nuka-ame =MK kAlA-pi(misty rain) n/k-21a-12d-21d + J prothetic a- + 1c-16a cf. J nuka, MK kye(rice bran), J kona, MK kAlA(flour/powder)
7) J niku=MK koki(meat) n/k-20c-4a-u/i. cf. u/i Ishii, ILT NEWS 91, p.44
8) J noro(roe) =MK kolani(elk) n/k-20-11-21b + K suffix -ni cf. MK nolA (roe).

We believe these examples will support our claim that Japanese and Korean have a shift between /n/ and /k/.

3 Reconstruction of proto Japano-Korean *tAr(earth)

We have hypothesized that Japanese color term ki(yellow) is derived from J ni(clay/mud), which is well supported by the evidences from Korean *no (red/yellow), as well as Mongolian and Turkish color terms of 'yellow' and those of 'mud/earth'.

Let us compare Mongolian(Mo) sira(yellow) with sirui(mud), and Old Turkish(OT) sarIG(yellow) (Clauson, p.848) with OT yer(earth) (Clauson, p.954), to recognize that in the Altaic the color term for 'yellow' is related to that of mud/earth. OT ki:r(dirt) (Clauson, p.735) is a /t/ > /k/ shift form and is cognate with OT yer(earth).

J doro(mud) will be related with them together with OT toprak(earth) (Clauson, p.443), which is a case of intervocal p-insertion. The hypothesis of p-insertion can explain the existence of intervocal /p/ in J kopori(ice) as OT ka:r(snow) and MK koselum(icikle) lack the sound /p/. And MK koAl(county), a doublet to MK kolh(id.) and MK nalah(coutry), is derived by dropping the intervocal /b/ of *kobAl, which was inserted as the result of labialization. cf. J kopori(county). We can show similar cases of p-insertion with Japanese: suppai = sui(sour), sibui(bitter) = sui(sour). J tapara(straw bag) is another case of the p-insertion. cf. J taru(barrel), and J zaru(basket).

If we reconstruct the proto-form for J ni(mud) and MK tta(ground), we are at a loss not knowing which was the original sound of /n/ or /t/, if we examine their derivatives J nipa(garden), J nawi(earthquake), J nora (field), J ta(rice field), J tuti(mud), J doro(id.), MK matang(garden) and MK patang(land). By examining the cognates of other Altaic such as Manchu(Ma) na(earth), Mo sirui(mud), and OT yer(earth), we feel safer in reconstructing Japano-Korean proto-form as *tAr, in that its initial /t/ most naturally shifts into Mongolian /s/ and Turkish /y/. And its final

/r/ is suported by J nora(field), J tuti/doro(mud), Mo sirui(mud), and OT yer(earth).

4 Correspondence between J siro and MK hAy(white)
We notice KD si-(to be white) is a variant of K huy-(id.) as we can show the examples of /s/·/h/ shift in the Korean language.
1) K sengey = KD heyngey(frost) < MK sengey(id.)
2) K hwiphalam = KD swiphalam(whistle)
3) K hyung = KD syung, swung(defect)
4) K swuyem = KD hiyem(beard and whisker)
5) K him = KD sim(strength)
6) K sokum = hoyem, holyem(salt)
7) K socwu = KD hyocwu(distilled spirit)
8) K sekyu = KD hekyu(petroleum)
9) K solikay = KD horikay(kite)
10) K sekhalay = KD hyekhalay(beam, rafter).

And based on the above examples we hope we can claim the correspondence between J siro and MK hAy(white), if we establish two additional supplementary laws to Martin's Japanese-Korean phoneme correspondence laws, i.e., Japanese initial /s/ corresponding with Korean /h/, and Japanese intervocal /r/ with Korean intervocal or final /y/.

First, let us establish a supplimentary law s/h by showing supporting data.
1) J sare > zare(to play with) =MK hwuli-(to cheat)? > hulak(prank) s/h-18- 11-16a
2) J siri(back) = MK hoy(end) s/h-20c-11aa, or s/h-20c-r/y-22 MK twih(back/north) will also be cognate.
3) J sirami = MK hye(louse) s/h-?15d-r/y-17b + J noun suffix-mi.
4) J sapi = MK homAy(hoe) s/h-18a-1d-20d + K suffix -i
5) J sugari =MK hulli-(to copulate) s/h-21aa-12d-23-11-15a
6) J sazaragu =MK hulu-(to flow) J repetitive prefix-sa + s/h-21f-11-21f + J verb ending -gu.
7) J sumapi(wrestling)= MK him(strength) s/h-u/i-2a-23 +J verb ending cf. MK hilhum hA-(struggle), ssilAm(wrestling). u/i cf. Ishii, ILT NEWS 91, p.44.
8) JD simdo =MK himturi-(backbreaking) s/h-15-2a-6b-21cc-12b + K verb marker -i.
9) J ···sitaga = MK hAtaka(though one did ···) s/h-20d-6a-17-4b-17
10) J suna= MK hulk s/h-21aa-n/l-23 + K suffix-k. cf. n/l Ishii, ILT NEWS 91, p.42.

J sita(tongue) is believed to be cognate with MK hye(id.), as we can show their doublets: JD bero, hera, KD sey, si, sseyttokaci(tongue). And it is well-known that the Edokko(native Tokyoites) used to confuse /hi/ with /si/ in spite of their good education, which may partly explain the shift between these phonemes.

And the following examples prove the phoneme correspondece between J intervocal /r/ and K intervocal/final /y/, enabling us to establish another supplementary law r/y, which is the doublet correspondence law to Martin's law 13, and which proves the correspondence between J tarapi and MK taya(basin)(cf. Martin, p. 247, washtab).

1) J tarapi=MK taya(basin) 6-17-r/y-17 + J suffix -pi
2) J miru(codium fragile, a sea plant)= MK meyok(kelp) 2-15c-r/y-19a + K suffix -k
3) J para=MK pAy(belly) 1-21d-r/y-22. cf. Martin,p.243, stomach
4) J mori(woods)= MK moy(mountain) 2-20-r/y-15d. cf. Martin,p.237, mountain
5) J bara =MK pAy([plural marker]group) 1-21d-r/y-15d.
6) J ara(bones and bowels taken away from carcass meat) = MK ay(bowel) 0-17-r/y-22
7) J siramu = MK say-(to dawn) 14-20d-r/y-23 + J verb ending
8) J sara = MK say(new) 14-17-r/y-22

We will need more supplementary laws to prove the correspondence with the following, J kurubusi = MK kwimeli(ankle), J siri = MK twi(back), J siro = MK cay(castle), J tori = MK say(bird), J potaru = MK pantoy(fire-worm), J para =MK mAyh(field), J parapu = MK mAy-(to get rid of), J pare = MK kay-(clear), J ari =MK kayami(ant), etc.

We believe, however, that the newly established supplementary law r/y is well supported by the doublet correspondence law, or Martin's law 13, and that the correspondence between J siro and MK hAy(white) is proven as s/h-20d-r/y-22, as J siro has the covered form sira found in the compounds sira-po(white sail), sira-ga(white hair), sira-tori(swan) etc.

5 Reconstruction of proto Japano-Korean *sAra(white)

We have proven above that J siro and MK hAy(white) correspond, by establishing supplementary laws s/h and r/y. MK hAy(white) must have been derived from reconstructed PJK *sAra(white) in that we can show other Altaic words supporting our reconstruction: Mo sira and OT sarIG(yellow), Ma Sara-(to become white), Sari gari(snow white), SariSa-(to flash white), Sanggiyan(white), etc. And as stated above, there is /s/·/h/ shift even within the Korean language. Ramstedt made a classical exposition that Korean intial /h/ is derived from Proto Altaic /s/, and showed MK hulk (dirt) to be cognate with Mo siruga, siru'ai, Soroi(earth/sand), Negidal sirgi, Solon siluktan, Goldi siru(sand)(Quoated from Kim Pang Han, 1983, p.167). J suna(sand) will also be cognate with MK hulk(earth).

J sarasu(to bleach) and sirusi(clear/vivid) are derived from J sara (new) and siro(white) respectively, both of which originated from PJK *sAra(white). Our earlier view that J sara(new) was a prefixed form of ara(new) must be corrected, which must have lost its initial /s/ as we see it now.

Martin corresponds MK say with J sara(new)(Martin, p.237, 154 NEW), to which we can add J sayaka(clear/bright) and J azayaka(clear/bright) as their cognates. The initial vowel of the latter word is a prothetic /a/.

J sirami(louse) is also traced back to PJK *sAra(white) as it is analyzed into sira(white)-mi(noun suffix), and its equivalent MK ni(louse), most probably related to K *no-(yellow) of MK nos(brass). And both J kisasa(louse egg) and J kisa(elephant) have J ki(yellow) in the initial syllable and the latter may have derived its name from 'white [tusk]' as ivory arrived here much earlier than the animal itself. MK kokhiri(elephant) seeking its meaning must have erroneously transformed itself into the present form ko(nose)-khiri(long). From these examples and Mo sira and OT sarIG(yellow), we assume that PJK*tAr(earth) acquired the meaning of *tAr(yellow), which originated *sAra(white) by /t/>/s/ shift. Ma ci (paint/lacquer), cihe/cige(louse), cifahan(mud for plaster), and cikiri (white hairs on a pelt), which contain *ci-(?white) will also be cognate..

6 Conclusion

We have shown in this paper that the color terms of Japanese and Korean for 'yellow' originally meant 'clay/mud', which was used as pigment. It is not difficult to understand J ni(yellowish red) and J ki(yellow) are doublet as the shades of red in Japanese include yellow: J akane(madder) literally means 'red root' and it has a light yellow root.

It is not easy, however, to understand why 'yellow' in the Altaic came to get fused with 'white'. The only explanation we can make here is that 'conspiciousness' was probably the original meaning PJK *sAra(white), as we see in J sirusi(clear/vivid), which stemmed from PJK *tAr(earth). We can see that MK nolah(yellow) shows closer similarity to PJK *tAr(earth) than K *no-(yellow) found in MK nos(brass), J ni(yellowish red), or J ki (yellow).

We hope we have served our purpose of this paper, by showing the basic color terms of Japanese and Korean are derived from the common source, and by submitting another evidence that Japanese and Korean are closely related.

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FUNCTIONAL CHANGE IN P1+NP+P2 PHRASES

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1. General Remarks*

In my previous studies (Akimoto 1992 and 1995), I discussed mechanisms for idiomatization, with emphasis on its universality and typological properties.

In this paper, I shall take up for discussion such phrases as 'on account of','in favour of' and 'by way of', focusing on the processes by which such phrases have come into idiomatization from the 16th century to the 19th century on the basis of my collected examples and the examples in The Oxford English Dictionary.

The reasons for making the analysis of such 'P1+NP+P2' phrases are as follows:

(1) There seems to have been no research on this topic except some on modern English (Quirk and Mulholland 1964).

(2) As will be discussed later, patterns of this kind began to increase from the 16th century onwards. Together with the development of prose style of modern English, these phrases show some interesting properties in their development.

(3) Contrary to the importance of grammaticalization, which Traugott and other linguists have been emphasising, that of idiomatization has been hardly referred to. The analysis of 'P1+NP+P2' phrases will throw certain light on idiomatization.

(4) The clarification of idioms consisting of such phrases will give important clues to grammaticalization, idiomatization and other related phenomena.

As has been mentioned before, the formation of these phrases began to increase from the early modern English period. As an approximation, I selected such 150 phrases as 'in accordance with', 'on account of' and 'in aid of' from The Oxford English Advanced Learner's Dictionary of Current English (1990) and checked their first citations in The Oxford English Dictionary. The following tables shows the result of the checking.

1200 -	3
1300 -	11
1400 -	13
1500 -	23
1600 -	36
1700 -	34
1800 -	30
1900 -	0

While 'in the form of', 'for the love of' and 'in honour of' were formed before 1300, most phrases were formed after 1600.

By way of methodology, first of all, I chose three texts of each century from the 16th to the 19th, and analysed those phrases which occurred frequently and which survive into present-day English.

We will see through the examples to be analysed that, of the 'P1+NP+P2' phrases, the 'in+NP+of' pattern ('in consequence of') is overwhelmingly frequent, occupying one third of the 150 examples given before. Other patterns such as 'on+NP+of', 'at+NP+of', 'by+NP+of', and 'in+NP+with' follow in that order in terms of frequency.

2. Idiomatization

In parallel with the notion of grammaticalization, I should like to define idiomatization as the linguistic process, both synchronic and diachronic, of reorganizing certain phrases into fixed/fossilized expressions whose meanings have become more or less abstract.

In my study (Akimoto 1992), I discussed some factors giving rise to idiomatization. They are (1) the shift from concreteness to abstractness, (2) reanalysis, (3) incorporation, and (4) blending. I will not explain these items again. My purpose in this paper is to demonstrate the validity of my claim by analysing the 'P1+NP+P2' phrases which I have collected. I will further argue that in the course of the idiomatization of these phrases, some of them were beginning to take on discourse functions by changing their grammatical skin.

2.1 Loss of the definite article

The change of concrete to abstract nouns is often reflected in the loss of the articles, particularly in the loss of the definite article in 'P1+NP+P2' phrases. The following are some examples where the definite article was attached to the nouns, but is lost in present-day English. Authors and pages of text are shown in parentheses.

a) in the chase of -→ in chase of

> And now they were already come upon the stays, when one of the sailors descried a gallery which came with sails and oars directly in the chase of them ...
>
> (Sidney: 67)

b) under the colour of -→ under colour of

> ... because he was a hugh beast and well shod, he thought to betray under the colour of demanding homage ...
>
> (Nashe: 122)

c) by the force of -→ by force of

> ... by the force of his wreathen hornes, he beat the braines out of the Shepheards head and slew him.
>
> (Deloney: 7)

d) in the furtherance of -→ in furtherance of

> ... and as it is a thing proper to the nature of a christian man, to inquire and followe after the trueth, I am settled in the furtherance of this good worke ...
>
> (Deloney: 282)

e) by the means of -→ by means of

> ... from whence hath growne the fatherly good will, which hitherto we haue borne vnto you: which we haue not onely since that time entertained, but also in like manner augmented, by the meanes of the good report ...
>
> (Deloney: 280)

f) in the search of -→ in search of

> ... Palladius thought best to take that armour, thinking thereby to learn by them that should know that armour some news of Armphialus, and yet not hinder him in the search of Daiphantus too.
>
> (Sidney: 119)

The process of nouns becoming abstract with the loss of the definite article gave rise to the restructuring of the whole phrases, i.e. change from preposition plus nominal object where the meaning of the noun is preserved, to more-or-less unified conjunctions where the meaning of the noun is not conspicuous and is incorporated into the whole phrase. With the strengthening of conjunction-prepositional functions, the phrase begins to have free position in a sentence, and gradually begins to have discourse functions.

2.2 Replacement of 'one's' by the peripheral genitive

(1) 'For one's (own) sake/for the sake of'

The following table shows the frequency of these patterns in each century.

16th	17th	18th	19th
for one's (own) sake (28)	for one's (own) sake (12)	for one's (own) sake (12)	for one's (own) sake (9)
	for the sake of (3)	for the sake of (15)	for the sake of (12)

a) Notwithstanding such was his loue toward her, that he could not forbeare her company, but made many iournies thither for her sake.
(Deloney: 48)

b) But I do see her set so against the wench, which I take to be a most extraordinary good servant, that I was forced for the wench's sake to bid her get her another place ...
(Pepys: 235)

c) But God knows, I am heartily sorry, for the sake of the whole nation ...
(Pepys: 624)

d) A man of sense carefully avoids any particular character in his dress; he is accurately clean for his own sake ...
(Chesterfield: 128)

e) ... it has too much the air of a political stratagem, adopted for the sake of giving under an high-sounding name, an importance to the public declarations of this club ...
(Burke: 7)

f) Women who had wildly adored him, and for his sake had braved all social censure and ...
(Wilde: 112)

g) From these remarks it will be seen that I look at the term species, as one arbitrarily given for the sake of convenience to a set of individuals closely resembling each other ...
(Darwin: 108)

I examined the distribution of these two phrases in modern English based on the Brown Corpus. 11 examples of 'for the sake of' occur, and 27 examples of 'for one's (own) sake' occur. The examples are mostly limited to such examples as 'for God's/Christ's sake' (14), 'for goodness sake' (3), 'for its own sake' (3). These examples show the stereotying structure of 'for one's (own) sake', and are therefore idiomatic.

(2) 'In one's defence/in defence of'

These patterns occurred in the 17th and 18th centuries as follows.

17th	18th
in defence of (7)	in defence of (5)
in one's defence (4)	in one's defence (3)

a) After much mirth, discoursing to the ladies in defence of the city against the country or court ...
(Pepys: 395)

b) Muley Hamlet all this while sayes nothing to the purpose in his own defence ...
(Dryden: 177)

c) ... these I should be almost tempted to swear the peace against, in my own defence, if I were not convinced that ...
(Chesterfield: 128)

d) ... when the Hanse-towns were necessitated to confederate against the nobles in defence of their properties ...
(Burke: 135)

(3) 'In one's absence/in the absence of'

The following table shows the frequency of these phrases in each century.

16th	17th	18th
in one's absence (6)	in one's absence (8)	
in the absence of (1)	in the absence of (3)	in the absence of (1)

a) But Anthony in his absence sung this song so often in Saint Martins, that ...
(Deloney: 205)

b) ... after the death of his brother William Rufus, tooke vpon him the gourrnement of his Land, in the absence of his second brother ...
(Deloney: 214)

c) From thence to my Lord's, where I found him within and he did give me direction about his business in his absence ...
(Pepys: 71)

d) So to my Lady Battens and sat an hour or two
and talked with her daughter and people, in the
absence of her father and mother and my wife ...
(Pepys: 103)

As the examples given above show, the contrast between 'of' and 'one's' consists not only in the difference between concrete and abstract nouns, but also in simple vs. complex noun phrases. That is, noun phrases with high information, such as those phrases containing modifiers, tend to appear after 'of', and noun phrases with low information, such as pronouns, take 'one's'. It can be further added that the 'one's' pattern expresses more literalness than the 'of' pattern.

2.3 Other phenomena

(1) 'On account of'

The OED explains this phrase in section 4. as follows: Hence, upon (obs. since 1750), on account of: a. In consideration of, for the sake of, by reason of, because of. b. In the matter of, with regard to, concerning. Obs.

As can be seen from the explanation by the OED and the examples given below, the present meaning 'because of' will have developed out of the older meaning 'in consideration of'.

a) ... he that has the best Beaver to his Malet,
has the greatest advantage, and as the former
past upon the Account of Valour ...
(Butler: 220)

b) It may, indeed, be improper for Mr. Harte to
pay that tribute of complaisance, upon account
of his character.
(Chesterfield: 160)

c) We must not, however, push the foregoing argument
too far, on account of the probable origin of
some of our domestic animals ...
(Darwin: 181)

(2) 'In consequence of'

Although the OED cites the 1775 example of 'in consequence', there was no such example in my data. The pattern 'in consequence of' was particularly frequent in the 18th century (24 examples).

a) ... when he was turned out half naked from jail
in consequence of an act for the relief of
insolvent debtors ...
(Smollett: 131)

b) ... none of our younger servants would stay
with us, and Lady Canterville often got very
little sleep at night, in consequence of the
mysterious noises that came from the corridor ...
(Wilde: 193)

In relation to this problem, the phrase 'in connection with' attracts our attention. This phrase is comparatively new, and the OED cites a 1768 example. 'In connection with' began to strengthen its conjunctive function. The process seems to proceed as follows:

_ in connection with _ -→ In connection with NP -→
In this connection _

In the Brown Corpus, examples of 'in this connection' occur eight times, and five out of the eight occur at the beginning of a sentence, showing a more conspicuous conjunctive function.

3. The Development of discourse functions

For 'P1+NP+P2' phrases to have discourse functions, it is necessary, as described before, that the phrase should have more grammatical functions, i.e. adverbial/conjunctive functions, and that the phrase should perform conjunctive functions by being placed at the beginning of a sentence as a result of positional freedom. Furthermore, the phrase must have its anaphoric functions of referring back to the previous context by attaching such demonstratives as 'this' and 'that' to the noun. This process increased gradually, as can be seen from the following table.

16th	17th	18th	19th
by this means (4)	on this/that account (3)	in this/that case (5)	in this case (9)
for this purpose (2)	in that regard (1)	for this/that purpose (5)	in this respect (3)
in this respect (2)	by that means (1)	on that score (3)	for this/that purpose (3)
	at this rate (1)	in this respect (2)	on that score (1)
		in this/that view (2)	on these accounts (1)
		in that light (2)	on this occasion (1)
		at this/that rate (2)	at this request (1)
		for those purposes (1)	
		on this account (1)	

An increase in the placement of 'P1+NP+P2' phrases at the beginning of a sentence can be observed from the following table.

17th	18th	19th
In order to NP (2)	In consequence of (4)	In the case of (14)
By benefit of (1)	With regard to (3)	In regard to (8)
By reason of (1)	With respect to (3)	With respect to (6)
	In that light (2)	In this respect (3)
	In that case (2)	In point of fact (1)
	By dint of (1)	On these accounts (1)
	By means of (1)	With regard to (1)
	For those purposes (1)	
	In order to NP (1)	
	On account of (1)	

Traugott and König (1991: 190-1) advocate 'principles of inferencing' and explain the process where 'while' developed firstly into the conjunction out of Old English 'þa hwile þe' (at the time that), and then into the concessive conjunction 'although'. That is, the process involves strengthening of the speaker's belief about the relationship between situations where, they claim, there are principles of information/relevance at work.

The transition of prepositional phrases discussed here into discourse functions took place as follows. The original function (for instance, complement) became weak and consequently strengthened its independence in the sentence, which enabled the phrase to come at the beginning of a sentence, establishing its conjunctive functions. This development includes the projection of the speaker's belief and, what is more important, the function of propositional/ textual coherence.

4. Conclusion

In this paper I have analysed 'P1+NP+P2' phrases, with emphasis on the abstractness of the noun. As examples of abstractness, I discussed the loss of the articles, in particular, the definite article, and replacement of 'one's' by the peripheral genitive, although the latter involves other factors. I also pointed out that this change led not only to the grammatical change of such phrases, but to the development of their discourse functions.

Phenomena relating to idiomatization in a diachronic sense have hardly been taken up squarely for discussion. The phenomena under discussion are problems relating both to grammaticalization and idiomatization. As properties of idioms, the frozenness of structure and non-decipherment of meaning from the constituents have often been pointed out (cf. Chafe 1968). The phrases which I have dealt with are of this kind to differing degrees, and therefore are related to idiomatization.

So far, idiom studies are mostly synchronic (Makkai 1972, Akimoto 1983). This fact comes mainly from a lack of linguistic intuition and a scarcity of data. But historical insight is essential to capture linguistic phenomena dynamically.

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TEXTS

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THE INTERFACE BETWEEN MORPHOLOGY AND PHONOLOGY: THE CASE OF BROKEN PLURALS IN ARABIC

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I. Introduction

To the very limited extent that the transformational-generative model has been applied to the Semitic languages, it has by and large been to such languages as Arabic and Hebrew. Yet, certain problems particular to some of the Semitic languages seem to be unresolved by the transformational-generative model. In particular, there are certain morpho-phonological processes which have resisted adequate analysis by the means at the disposal of traditional Semitic linguists.

The major one of these is the so-called 'broken' or 'internal' plurals exhibited by most of the Semitic languages and which is most highly developed as a system in the south Semitic languages such as Arabic, Amharic, and Harari. In Arabic, broken plurals, which constitute a highly complicated system, present some difficult problems for those who are either learning the language or describing its system.

The purpose of this study is three-fold. First, it is to present a brief overview of the traditional grammarian treatment of broken plurals in Arabic. Second, it is to propose a possible partial solution for broken plurals where morphology plays a crucial role, and to show how the analysis can be extended to account for the plurals of similar loan words in the language. Third, it is to revive the interest in linear analyses of this salient aspect of Arabic morphology, especially after a decade and a half of extensive investigation of this and similar problems in Arabic using nonlinear theories of phonology such as autosegmental, metrical, and prosodic.

However, in the course of this study, I will not discuss the unproductive plural pattrens in Arabic, although similar morphologically oriented accounts for those can be offered as well. I will deal with the most productive plural patterns in Arabic, and in doing so, I will show that despite their surface-wide diversity, broken plurals in Arabic exhibit a well-developed system. In fact, it is not necessary to learn the appropriate plural(s) of each word individually. Instead, nouns are assigned to well-defined classes.

The rest of the paper will be organized as follows: Section Two is a brief account of the traditional approach to the problem of broken plurals. Section Three describes in detail the proposed analysis and shows how it can be applied to the derivation of the broken plurals of various classes of nouns. Section Four extends the analysis to loan words. Section Five summarizes the basic points raised in the paper.

II. The Traditional Grammarians Approach

Traditional grammarians distinguished beween two types of plurals in Arabic, called 'sound or external' plurals and 'broken or internal' plurals (Cowan 1958:22, Ziadeh and Winder 1957:100-101, and Qabbish 1979:267-72). Sound plurals are formed by adding two suffixes -aat and -uun which are added to feminine and masculine singulars, respectively.[1] As Murtonen (1967:63) pointed out, sound plurals are formed from the simple stem, mostly without the feminine afformative by means of different afformatives without any remarkable changes in the singular stem.[2] On the other hand, broken plurals are formed by a number of morpho-phonological processes including prefixation, suffixation, change in vowel length and quality, vowel deletion, and insertion or gemination of consonants. Usually, there is some internal change within the stem of a broken plural, while sound plurals undergo suffixation of plural endings to the basic stems only.

Traditionally, broken plural formation is viewed as one of the most complex morphological processes in Arabic because it displays a considerably wide variety of possible surface plural forms (Qabbish 1979:269). Traditional grammarians have simply listed the inventory of surface plurals in some convenient format such as 'prefix' plurals, and 'suffix' plurals, and 'infix' plurals. The root selected as a citation form is f-9-l, the letters corresponding to the first, second and third consonants respectively of triconsonantal roots.[3] Thus, *fa9l* stands for the entire class of triconsonantal monosyllabic nouns with the vowel /a/, and *fv9vvl* stands for the entire class of triconsonantal bisyllabic nouns with a short vowel in the first syllable and a long one in the second.

In general terms, it seems that the traditional grammarians adopted a taxonomic morphological approach in their description of broken plurals in Arabic. They distinguished between two types of broken plurals: (1) *jumuu9 ?al-qilla* 'paucity plurals', and (2) *jumuu9 ?al-kathra* 'majority plurals'.

Traditional grammarians have posited some fairly complicated morpho-phonological criteria in their taxonomy. For example, all triliterals take the broken plural form *?af9ul* if, and only if, they meet the following conditions: The first and second radicals must be pure consonants (not glides), nominals must be monosyllabic nouns (not adjectives or participles), and the third radical must not be a geminate. The following are representative examples:

(1)	a.	najm	'star'	?anjum	'stars'
	b.	nahr	'river'	?anhur	'rivers'
	c.	darb	'way'	?adrub	'ways'

One of the crucial points in the traditional analysis of broken plurals in Arabic is that it is based on morphological patterns of the plural forms rather than singular forms. Benhallam (1980:159) points out:

> It seems that, generally, languages tend to form their plurals according to a pattern of the plural form, rather than base it on some characteristic of the singular form. Otherwise, plurals are formed based on stem types, which generally does not work for Standard Arabic. English /s/ plural morpheme has nothing to do with an inherent characteristic of the words *boys*, *cats*, *chairs* and *buses*, for example. It is attached to singular forms because English plurals end in /s/.

However, two points need to be raised. First, the characteristics of singular forms have been taken into account in the traditional analysis of broken plurals. This fact has been overshadowed by the neat plural patterns suggested by the traditional grammarians. Second, Arabic pluralization is a unique process in which several interrelated tasks are required in order to pluralize a single form. The analogy between Arabic pluralization and the pluralization of other languages, such as English, seems to be false. For example, the vast majority of English nouns take the /s/ plural morpheme; on the other hand, there is no such morpheme in Arabic. Instead, most nouns in Arabic take broken plural forms which exhibit quite a considerable variety of surface forms.

But why is there such a variety of forms for broken plurals? In answer to this question, Benhallam (1980:159) has quoted Kurylowicz (1962:193). I quote Benhallam's translation of Kurylowicz's answer:

> The great variety of internal plurals is a consequence of their position within the prehistoric grammatical system. They must have existed for a long time as derived forms (and not as inflected forms) along with the inherited regular plurals -u:n (masculine), -a:t (feminine). The four or five preferred forms of Arabic must be regarded as the beginning of a movement towards simplification (p. 162-63).

However, simplification is not the reason behind the four or five preferred forms of Arabic broken plurals; rather, it is their wide range of distribution which makes them the most preferred forms.

Since tracing the development of internal plurals within the grammatical system of Arabic is not a prime interest of this paper, I will not follow Kurylowicz's comment any further. Nevertheless, its significance can not be ignored. As Section Four shows, the majority of loan words form internal rather than sound or regular plurals. This in itself can be taken as evidence that internal plurals are as common as the sound plural.

As for previous scholarship on broken plurals in Arabic, there is little work on this subject within the linear transformational-generative framework. Works on broken plurals in Arabic within this model include Brame (1970), Levy and Fidelholtz (1970), Levy (1971), and Benhallam (1980). They all agree on one thing, that there is no precise formulation for the pluralization process in Arabic.

Levy and Fidelholtz (1970) and Levy (1971) suggest that the plural of any specific nominal can be predicted on the basis of its phonological shape, with some reference to the semantic features of the nominal. Although some generalizations are possible in such an approach, nevertheless, given most nominals, one can not infallibly predict the plural classes to which they belong. This arbitrary aspect of plural-marking in Arabic is illustrated by the following set of data:

(2)	a.	baHr '	sea'	?abHur
	b.	baHr	'meter'	buHu:r
	c.	bæyt	'house'	buyu:t
	d.	bæyt '	stanza'	?abya:t
	e.	risa:la	'letter'	rasa:?il
	f.	risa:la	'holy massage'	risa:la:t
	g.	9ayn	'eye'	9uyu:n
	h.	9ayn	'chief'	?a9ya:n

Thus, plural assignment in Arabic is based on phonological, morphological and semantic properties of nominals, combined with a certain amount of arbitrary marking. Since there is not, within modern morpho-phonological theory, a generally accepted formal device which will handle the assignment of singular forms to their corresponding plurals, I have chosen to use a set of morphological rules to represent the mechanism which captures the generalizations that can be made about plural markers in Arabic. My proposal will deviate from that of The Sound Pattern of English (1968) in the following way. I formulate morphological rules, whereas Chomsky and Halle do not, in fact, write morphological rules.

III. The Relevance of Morphology

As mentioned in the Introduction, this paper will concentrate on the most productive patterns of the broken plurals in the language. According to Wright (1971), there are 31 types of broken plurals. McCarthy and Prince (1990) reduce these into four shape-defined categories. The advantage of such a division is that it crucially depends on the prosodic shape of the stem. The four types include the iambic, the trochaic, the monosyllabic, and the miscellaneous (p.213). The iambic pattern is the most productive. Some of the singulars that form iambic plurals have one of the following patterns (McCarthy and Prince, 1990:217):

(3)

	Singular	**Plural**	
a.	CVCC		
	qidH	qidaaH	'arrow'
b.	CVCVC		
	9inab	?a9naab	'grape'
c.	CVCVVC+at		
	jaziir+at	jazaa?ir	'island'
d.	CVVCVC+at		
	?aanis+at	?awaanis	'cheerful'
e.	CVVCV(V)C		
	Xaatam	Xawaatim	'ring'
f.	CVCCV(V)C		
	jundub	janaadib	'locust'

Of the stems that form iambic plurals, I choose three patterns on which to carry out my analysis. The ones in (3a and b) have a wider distribution, while (3f) is among the least frequent of this group. I start with singulars that have CVCCV(V)C pattern. Consider the following examples:

(4)	a.	marsama	'pencil'	mara:sim
	b.	maHrama	'scarf'	maHa:rim
	c.	maSTara	'ruler'	maSa:Tir
	d.	matHaf	'museum'	mata:Hif
	e.	manbar	'pulpit'	mana:bir
	f.	maSHaf	'holy book'	maSa:Hif

In order to account for the pluralization process for nominals in (4a-f), three rules are needed. The first of these rules deletes the feminine suffix from those nominals that have them. Thus, the rule does not apply to (4d-f). This rule is formulated in (5):

(5) Feminine Suffix Deletion
{-X}----> Ø / [+ plural]

The rule accounts for the absence of the feminine suffix in the plural. The other two rules needed to derive the plural of (4a-f) are given in (6) and (7).

(6) Infixation:
Ø -----> a: / #CVC____C...
[+ Plural]

(7) Raising:
V -----> [+ hi] / #CVCa:C ___ C#
[+ plural]

These rules combine to derive the following:

(8) Underlying form	#maSTar+a#	#maHram+a#
Fem. Suf. Del.	#maSTar#	#maHram#
Infixation	#maSa:Tar#	#maHa:ram#
Raising	#maSa:Tir#	#maHa:rim#
Derived form	[maSa:Tir]	[maHa:rim]

(9)		
Underlying form	#manbar#	#maSHaf#
Fem. Suf. Del.	___	___
Infixation	#mana:bar#	#maSa:Haf#
Raising	#mana:bir#	#maSa:Hif#
Derived form	[mana:bir]	[maSa:Hif]

It must be mentioned that these rules assume the stem rather than the root to be the underlying structure to which they apply. Thus, the underlying forms of [manbar] and [maSHaf] are /m+nabar/ and /m+SaHaf/, respectively. This view of taking the stem rather than the root as a basis for plural formation is also adopted by prosodic analyses. McCarthy and Prince (1990: 217-221) adduce several arguments to show the inadequacy of root-based formation. Their arguments center around the fact that the plurals reflect aspects of the singular that the consonantal root does not describe. I here cite the arguments which are most relevant to my analysis. First, the transfer of vowel length from the singular to the last syllable of the plural happens only in singulars with initial heavy syllables. Examples include [jaamuus] / [jawaamiis] and [sulTaan] / [salaaTiin] where the first syllabe is either a CVV or CVC . Similarly, all the examples in (4) start with heavy syllables; hence their plural formation through the infixation of {-a:-}. Second, the number of syllables in the plural depends on the number of moras in the base. For example, the bimoraic base [nafs] forms the disyllabic plural [nufuus], while longer stems like [jundub] have trisyllabic plurals like [janaadib]. Thus, the plural of the examples in (4) are all trisyllabic. But, as I will show below, CVCVC singulars will produce bisyllabic plurals. Finally and most importantly, some derivational affixes are transferred intact (p. 219) :

(10)	Affix	Root	Singular	Plural	
	/m+/	/rHl/	marHal+at	maraaHil	'stages'
	/t+/	/qdr/	taqdiir	taqaadiir	'calculation'

Similarly, the nominals in (4) consistently include the prefix {m+} as part of the stem considered for plural formation. In other words, the first [C] of the pattern CVCCVC in [marsamat], for instance, represents the prefix {m+}.

In addition to the transfer of affixes from the stem to the plural form, the derivation in (8) and (9) reveals another characteristic of the stem that is copied in the plural form. The nominals in (4) have the underlying representaion /m+CVCVC/ rather than /mV+CCVC/. The absence of a vowel between the first two radicals of the root in the stem can be accounted for in two different ways. The first option is to posit the Vowel Deletion Rule given in (11).

(11) Vowel Deletion Rule:

V-----> Ø / V+C_____CV

The rule in (11) assumes the form of the prefix to be {mV-}. This rule when applied to an underlying form in the output of suffixation such as /mv+rasamat/ will give [mv+rsamat] by deleting the vowel between the first two consonants of the root.

An alternative way of explaining the absence of a vowel between the first two consonants of the root is to assume that the prefix is {m-} and to posit a rule of stem-initial Ca Metathesis.

(12) Ca Metathesis:

C	C	V	C ---->	C	V	C	C
1	2	3	4	1	3	2	4
[prefix]		[stem]					

When this rule applies to an underlying form like /m+rasamat/ it will give [marsamat]. The advantage of the Metathesis rule over the one in (11) which deletes the vowel of the root is that Ca Metathesis is a general rule that applies in a wide variety of classes in derivational morphology. For instance, in addition to plural formation, it applies in the comparative construction, such as, /?+kabar/ ---> [?akbar] 'bigger, or older', and in the derivation of certain adjectives, such as /samar/ ---> [?asmar] 'brownish color'. Also, rule (11) in its present form is unmotivated unless we resort to the prosodic justification of prohibiting a sequence of more than two unstressed light syllables. Compare, for instance, [katabahuma] 'He wrote them(dual)' where stress falls on the third syllable from the beginning. Alternatively, one can restrict the rule in (11) by specifying plural as the environment for its application. However, this move will add to the cost of the rule.

The rule of Ca Metathesis will give the following derivation in the singular:

(13)	Underlying form	/SaTara/	/nabar/
	m-prefixation	/m+SaTara/	/m+nabar/
	Ca Metahesis	/maSTara/	/manbar/
	Derived form	[maSTara]	[manbar]

Similar derivations can be given for the plurals assuming Ca Metathesis as the operating rule:

(14)	Underlying form	/SaTara/	/nabar/
	m-prefixation	/m+SaTara/	/m+nabar/
	Fem. Suf. Del.	/m+SaTar/	________
	Ca Metathesis	/maSTar/	/manbar/
	Infixation	/maSa:Tar/	/mana:bar/
	Vowel Raising	/maSa:Tir/	/mana:bir/
	Derived form	[maSa:Tir]	[mana:bir]

In addition to the above-mentioned advantages, the Ca Metathesis rule minimizes the total number of rules needed to derive the singular and the plural. In an analysis that assumes a rule of Vowel Deletion instead of Metathesis, it becomes necessary to posit another (different) rule of vowel deletion which will apply in the derivation of the plural but not the singular. This rule deletes the last member in a sequence of two vowels. Consider the derivation of both forms of matHaf 'museum' without the Metathesis Rule:

		Singular	**Plural**
(15)	Underlying Form	/#taHaf#/	/#taHaf#/
	mv-prefixation	#ma+taHaf#	#ma+taHaf#
	Infixation	__________	#ma+ta:aHaf#
	Raising	__________	#ma+ta:aHif#
	Vowel Elision	__________	#ma+ta:Hif#

Vowel Deletion	#ma+tHaf#	___________
Derived Form	[matHaf]	[mata:Hif]

Note that in this analysis the rule of Vowel Elision and that of Vowel Deletion can not be collapsed because of the difference in their environments. Under the Metathesis rule, however, the absence of a vowel between the first two consonants of the root in derived forms is taken care of. The vowel is not deleted; rather, it switches its place with the first consonant of the root. Therefore, the need for a rule of Vowel Deletion or Vowel Elision does not arise in the analysis of this type of nominals. All these considerations argue for the rule of Metathesis as given in (12).

I now turn to CVCVC nominals to show how the proposed set of rules can account for the derivations of their plurals as well. Note that the stem of these nominals does not include the prefix {m-}. Consider the examples in (16):

(16)	a.	faras	'horse'	?afra:s
	b.	9amal	'work'	?a9ma:l
	c.	qadar	'destiny'	?aqda:r
	d.	waja9	'pain'	?awja:9

The rule of plural infixation can be modified so that it will infix {a:} after either the second or third consonant, as in (17):

(17) Infixation (Revised)
Ø ----> a: / a) # m+VC_____CVC#
b) # ?+ VCC_____C#

Subpart (a) of the rule in (17) states that {a:-} is infixed after the first consonant of the root in m-prefixed stems; while in subpart (b) of the rule, prefixation occurs after the second consonant. With this slight modification in the rule of infixation, the examples in (16) need only two of the rules proposed so far to derive their plurals:

(18)

Underlying form	/faras/	/9amal/	/qadar/
?-prefixation	/?+faras/	/?+9amal/	/?+qadar/
Ca Metathesis	/?afras/	/?a9mal/	/?aqdar/

Infixation	/?afra:as/	/?a9ma:al/	/?aqda:ar/
Vowel Deletion	/?afra:s/	/?a9ma:l/	/?aqda:r/
Derived form	[?afra:s]	[?a9ma:l]	[?aqda:r]

The other two rules needed are those of ?-prefixation and Vowel Deletion. Prefixation of ?- and m-prefixation are basically two forms of the same morphological rule, namely, prefixation. As for the deletion rule, evidence shows that, unlike the rule in (11) which deletes the vowel between the first two consonants of a root, this rule is well motivated. It deletes the second vowel in a sequence of two vowels that arise as a result of morphological infixation. The rule is formulated as in (19):

(19) Vowel Deletion:

$$V \dashrightarrow \emptyset \;/\; [+\text{long}] \;\_\_\_$$

A small group of CVCVC nominals have plurals slightly different from the examples in (18). However, these should not pose any problem for the rules posited so far. I consider some of these nominals and show how the rules can derive their plurals. They basically concern nominals whose first root consonant is a glottal stop. Some examples are given in (20):

(20)	a.	?amal	'hope'	?a:ma:l
	b.	?ajal '	destiny'	?a:ja:l
	c.	?ufuq	'horizon'	?a:fa:q

These examples show the effect of the rule of Compensatory Lengthening by which a glottal stop in a syllable coda deletes and is compensated for by lengthening the vowel of that syllable. The rule can be formulated as in (21):

(21) Compensatory Lengthening:[4]

$$\begin{array}{cccccccc} C & V & ? & \$ & \dashrightarrow & C & [+\text{long}] & \emptyset & \$ \\ 1 & 2 & 3 & 4 & & 1 & 2 & 3 & 4 \end{array}$$

The derivation of the examples in (20) proceeds as follows:

(22)	Underlying Form	/?amal/	/?ajal/	/?ufuq/
	?-prefixation	/?+?amal/	/?+?ajal/	/?+?ufuq/
	Ca Metathesis	/?a?mal/	/?a?jal/	/?u?fuq/
	Compen. Leng.	/?a:mal/	/?a:jal/	/?u:fuq/
	Infixation	/?a:ma:al/	/?a:ja:al/	/?u:fa:uq/
	Vowel Deletion	/?a:ma:l/	/?a:ja:l/	/?u:fa:q/
	Other Rules	________	________	/?a:fa:q/
	Derived Form	[?a:ma:l]	[?a:ja:l]	[?a:fa:q]

A later rule of regressive assimilation changes [u:] in [?u:fa:q] to ?a:fa:q] thus deriving all the forms in (22).

Using the same set of rules, we can account for CVCC nominals as well. Representative examples are given in (23):

(23)	a.	fi9l	'action'	?af9a:l
	b.	jism	'body'	?ajsa:m
	c.	qidH	'cup'	?aqda:H
	d.	qidH	'arrow'	qida:H

In these examples subpart (b) of the infixation rule applies. It applies in examples (23a), (23b), and (23c) all of which have the prefix ?-. However, examples like (23d) require the following modification in the infixation rule:

(24) Infixation (Final Form)

Ø ----> a:/ a) #m+VC_____ CVC#
b) #(?)+VCC____ C#

Rule (24) states that in the absence of a prefix, plural infixation occurs after the second consonant. The derivation of the plurals in (23) is illustrated in (25):

(25)	Underlying Form	/qidH/	/qidH/
	?-prefixation	/?+qidH/	______
	Ca Metathesis	/?iqdH/	______
	Infixation	/?iqda:H/	/qida:H/
	Other Rules	/?aqda:H/	______
	Derived Form	[?aqda:H]	[qida:H]

So far the rule of infixation has been shown to figure in the derivation of the broken plurals of more than one class of triconsonantal nominals. These are classes whose singulars display CVCCVC, CVCVC, or CVCC patterns. In addition to this rule, a small set of rules highly motivated in other parts of the grammar were also necessary.

I finally show that these rules can also account for biliterals involving one of the diphthongs, [aw] or [æy]. Representative examples are given in (26):

(26)	a. kawn	'universe'	?akwa:n
	b. 9i:d	'feast'	?a9ya:d
	c. di:n	'religion'	?adya:n

The plural forms of the nominals in (26) always have a glide between the two consonants. However, these glides do not appear in the surface form of all singulars. For instance, [kawn] surfaces with a glide, while both [diin] and [9iid] have a long vowel instead. The derivation of the plural of these nouns exactly parallels that of the examples in (25). This is shown in (27):

(27)	Underlying Form	/kawn/	/diyn/
	?-prefixation	/?+kawn/	/?+diyn/
	Ca Metathesis	/?akwn/	/?idyn/
	Infixation	/?akwa:n/	/?idya:n/
	Assimilation	________	/?adya:n/
	Derived Form	[?akwa:n]	[?adya:n]

The singular of these nouns can be handled by postulating a rule of Monophthongization which accounts for the failure of the underlying glide to surface in certain forms. This rule converts /iy/ to [i:]. It is formulated as follows:

(28) Monophthongization:

$$\begin{array}{cccccccc} \left|\begin{array}{l}\text{+high}\\ \text{-bk.}\end{array}\right| & \left|\begin{array}{l}\text{-cons.}\\ \text{-syll.}\end{array}\right| & C & \text{--->} & [\text{+long}] & \emptyset & C \\ 1 & 2 & 3 & & 1 & 2 & 3 \end{array}$$

The derivation of the singular of [?adya:n] and [?a9ya:d] is given in (29):

(29)	Underlying Form	/diyn/	/9iyd/
	Monophthongization	/di:n/	/9i:d/
	Derived Form	[di:n]	[9i:d]

The rule of Monophthongization is well known in the development of most dialects of Arabic. Synchronic alternations in those dialects show that [o:], [e:], and [i:] are obviously derived from /aw/, /æy/, and /iy/, respectively. The following are but a few examples to support this claim:

(30)	Standard Arabic	Makkan	Egyptian	Sudanese
	mawj	mo:j	mo:j	mo:j
	bæyt	be:t	be:t	be:t

In this section I have shown that the morphological rule of Infixation figures in the derivation of the broken plural of a number of classes. These classes range between the most and least frequent in terms of occurrence. They include biliteral nominals and nominals whose singulars display CVCC, CVCVC, and CVCCVC patterns. A few other rules, independently motivated in the language, were also necessary to the account. In the following section I will show how the rule of Infixation also accounts for the plural formation of new words in the language.

IV. Extending the Analysis

One criterion of testing the psychological reality of phonological and morphological rules or constraints of the native langugage is to consider the behavior of borrowed words when they enter the language. The assumption is that these words will be subjected to and hence modified according to these rules and constraints. I will draw evidence from the area of loan words to show that Infixation is a general rule of plural formation which applies to both native and borrowed words if they fit its description.

At the beginning, it is important to mention certain facts about plural formation in Arabic. Of the two types of plurals, 'sound' and 'broken', the latter seems to have a wider distribution. According to Levy (1971), few categories of nominals take sound plurals. These include proper names, transparently derived nouns or adjectives such as participles, and diminutives. Otherwise, all canonically shaped lexical nouns of Arabic have broken plurals. The situation among loan words in the language is not different. All canonically shaped loans, including recent ones, form broken plurals (McCarthy and Prince 1990), while noncanonical or unassimilated loans take sound plurals. Thus, one can conclude that broken plurals are the normal way of pluralizing in the language. In what follows I will show how my analysis will account for the pluralization of loan words as well. Consider the following representative examples of the type CVCCV(V)C :

(31)	a.	basToon	'piston'	basa:Tin	(French)
	b.	beejar	'pager'	baya:jir	(English)
	c.	farmal	'brake'	fara:mil	(Unknown)

The derivation of these examples is straightforward. The first consonant in each noun occupies the position of the prefix in native words (m- or ?-) thus allowing the rule of infixation to apply after the second consonant of the noun. This is shown in (32).

(32)	Underlying Form	/farmal/	/bayjar/
	Infixation	/fara:mal/	/baya:jar/
	Vowel Raising	/fara:mil/	/baya:jir/
	Derived Form	[fara:mil]	[baya:jir]

Another group of loan words fits in with the CVCCV(V)C type with respect to plural formation. They are given in (33).

(33)	a	ka:bil	'cable'	kawa:bil	(French)
	b.	ka:dir	'cadre'	kawa:dir	(French)
	c.	kabi:nat	'cabin'	kaba:yin	(French)

The only difference exhibited by these nouns is the presence of a glide, either [w] or [y], in the plural. The explanation for the glides lies in the principles of the syllable structure of Arabic:

Onsetless syllables are prohibited, hence the insertion of the glide to provide the needed consonant. In (33) onsetless syllables arise as a result of plural infixation which applies either after the first consonant, as in (33a) and (33b), or as expected, after the second consonant, as in (33c). This is illustrated in the following derivation:

(34)	Underlying Form	/kaGbil/	/kaGdir/	/kabiynat/
		_______	_______	/kabiyn/
	Infixation	/kaGa:bil/	/kaGa:dir/	/kaba:iyn/
	Glide Insertion	/kawa:bil/	/kawa:dir/	/kaba:yiyn/
	Other rules	________	_________	/kaba:yin/
	Derived Form	[kawa:bil]	[kawa:dir]	[kaba:yin]

Certain points need to be clarified. I start with the assumption that the underlying representation of the long vowel in [ka:bil] and [ka:dir] contains [G] (glide). This assumption allows us to explain the presence of the glide. If the loan is perceived as having the diphthong /aw/, then all that happens is to infix the plural morpheme {-a:-} after the second consonantal element. The glide in this case is back and round agreeing with the vowel /a/. The example in (33c) is slightly different. The long vowel in [kabi:nat] is underlyingly /iy/; infixation creates an onsetless syllable which leads to the insertion of [y] in order to provide the needed onset. Note that the glide agrees in backness and roundness with the vowel of the second syllable /iy/. The monophthongization of /iy/ and subsequent shortening are due to other rules that do not concern us here.

The rule of infixation also accounts for another group of loans which exhibits a CVCC pattern in the singular. Words of this group are given in (35):

(35)	a.	kusk	'kiosk'	?aksa:k	(Persian through French)
	b.	bu:k	'note book'	?abwa:k	(English)
	c.	fi:s	'plug'	?afya:s	(French)
	d.	sifr	'code'	?asfa:r	(French)

The derivation of (35a) and (35c) provides an example of the plural formation of this group:

(36)

Underlying Form	/kusk/	/fiys/
?-Infixation	/?-kusk/	/?-fiys/
Ca Metathesis	/?uksk/	/?ifys/
Infixation	/?uksa:k/	/?ifya:s/
Other Rules	/?aksa:k/	/?afya:s/
Derived Form	[?aksa:k]	[?afya:s]

In this section I have shown that the rule of infixation also figures in the plural formation of new words in the language. This validates the psychological reality of the rule of infixation in native Arabic plurals.

V. Conclusion

The analysis I propose in this paper revolves around a morphological rule of Infixation. The rule has the effect of infixing a long vowel {-a:-} after the second or third consonant of the stem. The analysis required a small set of additional rules, independently motivated in other parts of the grammar of the language, for instance, the rules of Ca Metathesis and Vowel Deletion. The analysis covers a large number of classes of nominals in Arabic. These are nominals with CVCCV(V)C, CVCVC, and CVCC singular stems, as well as biliteral stems. The generality of the analysis becomes obvious when one considers the fact that these classes have the widest distribution among all classes of nominals in the language. Further support for the analysis comes from the area of loan words whose plurals clearly bear out the application of the proposed rules.

Finally, this paper hopes to have demonstrated the viability of linear analyses for one of the most problematic areas in Arabic morphology.

NOTES

1. All participles and nouns indicating professions, habitual actions, and proper names take sound plurals which are called *al-jumuu9 ?al-saalimah* 'complete or entire plurals'. The etymology of their name stems from the fact that all the

vowels and consonants of their singulars undergo no deletion or change in the plural.

2. In order to understand Semitic morphology, one needs to distinguish between the terms root and stem. A root is a set of consonants, generally three or four, which have lexical content. Thus, the root k-t-b means 'write' and s-r-b means 'drink'. The root may be symbolized $C_1C_2C_3$ or $C_1C_2C_3C_4$ in which the subscripts refer to the position of a particular consonant in the root. Each consonant in a root is called a radical. On the other hand, a stem consists of a consonantal root plus the infixed vowel patterns associated with it, and is symbolized $C_1VC_2VC_3$ or $C_1VC_2VC_3VC_4$ (to use the most common types of stems).

3. In this paper, H and 9 will represent the voiceless and voiced pharyngeals, respectively, and T, D, S, and Z will denote the emphatic consonants. Length in vowels will be indicated by using the colon [:], unless the lengthened vowel is in a quotation. The rest will follow regular transcription.

4. Since coalescence processes involve the loss of one segment and the modification of another, transformational rules are the only means provided by generative linear phonology to represent this kind of process.

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V

CROSS-LINGUISTIC AND CROSS-CULTURAL STUDIES

WAR AND PEACE - SPANISH *VERSUS* ENGLISH IN SAN ANTONIO

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1. INTRODUCTION

Bienvenidos todos a San Antonio. Welcome to all to San Antonio. This bilingual greeting is symbolic of the way most San Antonians would like to have you think of this city: friendly, bicultural, and bilingual. You may have noticed some bilingual signs at the airport or on billboards on your way to the conference. Spanish is used with pride now as the unofficial second language of the city, but it was not always like this. The military metaphor used in the title of this paper may overstate the history of attitudes toward Spanish and English in San Antonio, but there are native San Antionians who have lived through times that were less than welcoming to the Spanish language. One sociolinguistic study done in the 1950s reports that Spanish-speakers in the community were regarded as inferior, and tells of the open use of derrogatory ethnic slurs for Mexican-Americans by Anglos (Sawyer 1971:379). For those Spanish speakers who interacted with the English-speaking Anglo community, it was better not to admit to knowing Spanish, and not to use Spanish phonology when using Spanish loanwords in their English. This history of linguistic oppression suggests minimally a cold war that for a long time relegated Spanish to second-class status. However now in the 1990s the cold war has not only reached detente, but at least a symbolic victory may have conceded in favor of Spanish. The questions to be asked here is what are the forces that might account for this turn-around? And, why has Spanish persisted in the face of this linguistic oppression?

The coexistence of minority languages with a dominant language in bi- and multilingual communities has been examined on a number of parameters, such as intergroup relations (c.f. Giles, Bourhis, and Taylor 1977)[1], ethnicity (c.f. Fishman 1989), and market importance (c.f. Coulmas 1992). These are the aspects of the language contact situation that will be described here for Spanish in San Antonio. In the present treatment, process will be seen as crucial to the change in attitudes; a diachronic examination of the the dynamics between the ethnic group and the socio-culturally dominant group locally will be shown to account for current attitudes toward the ethnic language. Clearly, the issues to be discussed here will find parallels in bilingual and multilingual situations worldwide.

2. THE HISPANIC HERITAGE OF SAN ANTONIO

2.1 Past immigration to and settlement in San Antonio

San Antonio was a multilingual city from the time of its founding, with Native American languages and Spanish providing the linguistic mix. The Spanish explored Central and Southern Texas from the mid-sixteenth century onward, but modern-day San Antonio dates from when the presidio and Villa de San Fernando de Bexar was established in 1731, in what is now downtown San Antonio. In the same year a mission, San Antonio de Valero, was established. Subsequently it was moved to the site now known as the Alamo, near the growing military presidio which was the first Spanish settlement in Texas. Spanish rule ended in 1821, which signalled the beginning of modern day Mexico. Many Anglos emigrated to the San Antonio area from 1821 to 1836, when it was officially under the Mexican flag. In February of 1836 a small group fighting for Texas independence lost at the Alamo, but one month later were victorious at the Battle of San Jacinto, and San Antonio once again belonged to the Republic of Texas. In 1845, Texas became a state of the Union; the Treaty of Guadalupe Hidalgo in 1848 officially removed any Mexican claim to the area. Between 1870 and 1920, the population of San Antonio grew from 12,000 to 161,000 to become the largest city in Texas (Fehrenbach 1968: 601, 710).

The bulk of the new residents after 1900 were of Mexican origin, fleeing the disruption of the revolution which was a major upheaval for Mexico from 1910 through the end of the decade. The Mexican ethnic group of the city grew from 13,722 in 1900 to 59,970 by 1920, an increase of over 46,000 (Garcia 1991:29); however, this figure includes an increase in the group's population as the result of birth rate as well as immigration. By 1930 the Mexican population of the city numbered 82,373, accounting for 35.7% of the total. The period prior to 1930 accounts for 40 percent of the current Mexican-origin population of San Antonio (Jones 1994:8).

The newcomers settled on the West side of San Antonio, which was even then considered the Mexican part of town or the "Latin Quarter" (Garcia 1991:16) and is still the nucleus of the present-day Spanish-speaking community. Largely from the poor, rural, central states of Mexico and for the most part uneducated, the greater part of this group saw economic opportunity as a motivator for resettlement north of the Rio Grande (Garcia 1991:34). The Mexican Revolution also sent a a class of wealthier immigrants to San Antonio, the Mexican *ricos* 'rich ones' that was different in terms of education and occupation, but were fewer in number. Subsequent to the Revolution, Mexican immigration to San Antonio was primarily from the border region of South Texas (Jones 1994:10).

2.2 Current Demography

In 1982, San Antonio was determined to be the 10th largest city in the

United States, with a population estimated at 820,000 and an area of 300 square miles.[2] For the year 1989 the population figure was projected at 1 million within the city limits alone (San Antonio Growth Almanac, 1985). In the 1980 census, more than half of the population of San Antonio, or 53.7%, was Hispanic, 38.1% was Anglo, 15.2% was Black, and .9% was of other ethnicity. Of the Hispanic population, 93% is of Mexican origin.

3. LEGACY OF CULTURAL AND RACIAL DISTRUST

One important reason to consider the historical context of linguistic oppression is to uncover any covert reasons for it that may not be apparent synchronically. A case in point is the tradition of oppression of people of color in Texas. Negative attitudes toward Mexicans and the Spanish language were a legacy of the 19th century when Anglo rule began in Texas. With the advent of English-speaking settlers in 1825, and their domination of Texas after 1848, American nationalism became equated with speaking English; speaking Spanish was viewed as suspect. Texas statesman Stephen F. Austin wrote in 1835 that the best interests of the nation would be served if Texas became Americanized, that is, "...settled by a population that will harmonize with their neighbors to the East in language, political principles, common origin, sympathy, and even interest" (De León 1983:4) In the opinion of one historian, the animosity between the English-speaking settlers and the hispanic presence in the city dates back from the British antipathy towards the Spanish on the continent of Europe based on predjudices against Catholicism and racial impurity in Spain (De León 1983:4). Mexicans were similarly seen to be "degenerate creatures--un-Christian, uncivilized, and racially impure" (De León 1983:5). After the "Texas Revolution" of 1836, Anglo-Texans imposed white supremacy and civilization on the hispanics in the state (De León 1983:13); after 1848 the oppression became even more pronounced.[3]

In view of these negative attitudes toward the ethnic group, it is not surprising that suspicion toward speaking Spanish has a long tradition of suspicion in the state. As recently as the 1960s Texas schools prohibited the use of Spanish even on the playground; many of the state's Mexican Americans remember being threatened with punishment for speaking Spanish at school. Preliminary discussions with local Spanish speakers reveal a commonly held lore in Texas regarding why one should not speak Spanish within earshot of non-Spanish speakers. The most popular explanation is that it is rude because, "people might think that you are talking about them."[4]

4. POLITICAL AND SOCIAL CHANGE

This section of the paper will examine the position of Mexican Americans in San Antonio in terms of first, political power, and second, geographical integration into the community, suggesting that a change in both has been important to changing attitudes toward Spanish.

4.1 Political resurgence of Mexican Americans

Openly negative attitudes toward Spanish in San Antonio in the 1950s may have been a reflection of the political powerlessness of the Mexican American population as a whole during that time. There is no question that the emergence of the Mexican American population of San Antonio as politically significant in more recent years has been dramatic. The drama evolves from the fact that Mexican Americans had been discounted or disenfranchised politically since 1900, until certain important reforms in the decades of the sixties and seventies. Prior to 1900, Mexican Americans were the largest voting block in San Antonio (Booth and Johnson 1983:9). But by the turn of the century, Anglo Texans were the dominant voting group in the city; they tended to be Baptist and favored prohibition (op. cit. 10). This created political factionalism against groups such as the Mexicans and the Germans, "who did not conform to their version of Victorian middle-class morality," according to Booth and Johnson (1983:10). Additional obstacles to having a political voice included a poll tax which effectively discouraged this group from voting in State or County elections until 1966; the denial of the right of military personnel to vote locally until 1965; and until 1972 an extremely early registration deadline for local elections.

A number of things happened in the 1970s to change this. One was the extension in 1975 of the Voting Rights Act to Mexican Americans in Texas, ensuring for them as it had for Blacks in 1965 the federal standards of fair election procedures. For the first time in 1975 it became the law in Texas to have voting materials printed in Spanish. The 70s also saw the decline of the "Good Government League," a political organization led by Anglo businessmen who since 1955 had effectively controlled city government by providing the backing needed for effective citywide campaigning in local elections. Their candidate for mayor failed to win the office in 1973--for the first time since the mid-1950s. The demise of the League was ensured by the Justice Department's finding in 1976 that an earlier annexation (1972) which added 51,400 new residents, 3/4 of them Anglo, effectively reduced the representation of Mexican Americans in city government. In 1976 the city council proposed a reform of the city charter from "at large" representation to single-member districts, which ensured that an ethnically homogeneous district could select a councilperson that best represented its interests. In 1977 the city council had its first non-Anglo majority; of ten places, 5 were from the Mexican American West and South sides of town, and one was from the African American East side.

4.2 Economic and geographic mobility

In addition to lack of political power in city affairs, the poverty and geographic segregation of Mexican Americans in the early part of this century, I suggest, meant further exclusion from political, social or linguistic influence in the city. According to one source:

> . . . by 1930 the overwhelming majority of the Mexicans were living in the West Side of San Antonio. . . The Latin Quarter in the west-central section of the city was characterized by poverty, dilapidated housing, and almost no sanitary facilities. Within this slum area, comparable to El Paso's South Side and to Los Angeles's East Side, there was a cycle of sickness, unemployment, poor living conditions poor diet, poor education, and poor health. (Garcia 1991:38)

Although conditions improved gradually over the years in San Antonio for the Mexican American, the West side continued to be the geographical locus of the community through mid-century.[5]

By 1970, however, the Mexican American (majority) population of the city had overflowed the boundaries of the West Side, expanding to the adjacent South Side of the city[6] as well (Brischetto, et al. 1983:76). The South and West Sides together accounted for approximately 55 per cent of the city's Mexican-origin population. Ethnic and racial restrictions on property deeds prevented Mexican Americans from living in some residential neighborhoods. While this affected a few nieghborhoods in the West and South Sides, it affected many more in the wealthy Anglo North Side, including the "far North," which had received the benefits of many civic improvements in the era of the Good Government League.

In addition to deed restrictions historically, the lower income of Mexican Americans as a group prohibited geographic integration of the Mexican American Spanish-speaking and English-speaking Anglo populations. The city's residential growth by 1969 was distinctly greater to the north than to the south of Loop 410, the main peripherical highway around the city. Homes to the north were expensive, according to one geographer. He adds:

> Given its price, it is not surprising that such northern land was populated by higher-income Anglos, leaving behind ethnically distinct wedges which served to accentuate San Antonio's sectoral patterns of income and land use. Inside Loop 410, five tract series have above 68 percent of their population in a single ethnic group. These are the west central (79% Hispanic); the east central (72% black); and the northeast, north central, and northwest (respectively, 72%, 68%, and 73% Anglo). (Jones 1983:48)

Unquestionably, the means of geographic integration into the neighborhoods of the middle- and upper-class Anglo elites, was income. However, as recently as 1983 the occupational status of Mexican Americans in San Antonio was reported to be "substantially lower" than that of Anglos, according to one sociological study (Harris 1983:61). Skilled labor is the highest category of employment for males, at 52% for Mexican Americans and 43% for Anglos. Although both groups have "substantial occupational mobility, [. . .] Southern Anglos either attain upward occupational mobility or retain professional or managerial status, while the Mexican Americans of San Antonio were more likely to be downwardly mobile or to preserve skilled blue-collar status" (Harris 1983:63).

Nationwide, real earnings have not kept pace with inflation for Hispanics in the decade between 1981 and 1991 (SVRN, June 1993:4). Although San Antonio still has a large Mexican American population at the poverty level today, this population's middle-class group is also sizable and upwardly mobile. Almost one-fourth of the Mexican American population now lives on the North Side (Jones 1994:14). It is significant for the social integration of the two groups that there is now a Mexican presence in the once ethnically-restricted North side of town, although the population is still concentrated in the West and South sides.

5.0 CULTURE AND IDENTITY OF SAN ANTONIO TEJANOS

5.1 Alignments to English and Spanish and Mexican identity

It is arguable that Spanish in San Antonio would not be as well accepted today if it were not for the fact that the majority of the Mexican American population were not also fluent English speakers. Fully 78 percent of Hispanics in the state of Texas speak Spanish either well (24%) or very well (54%), according to the 1990 census. Although Texas has the second-largest number of Spanish speakers in the U.S. and is the first state in Spanish-language claiming for native-born Hispanics (Sole 1990:41), there has been a gradual but steady shift to English over the years. English is clearly the language of economic mobility city-wide. Lack of ability in English has been found to be ". . . the single most important deterrent to high occupational position," according to one San Antonio researcher (Harris 1983:68).

Viewed historically, the awareness of the importance of English for the Mexican American community of San Antonio was anticipated as early as 1929 with the formation of the League of United Latin American Citizens, called LULAC, in Harlingen, Texas.[7] The LULAC charter demonstrated that the Mexican American middle class in San Antonio was soundly behind the nationalistic goals of the Anglo middle class. Item 4 of the charter declared English to be the official language of the organization. Related goals included learning to speak it and to teach it to their children.[8] It was by means of this alignment in the 1930s that the Mexican American community began its integration to the lifestyle and language of the influential Anglo population.

Nevertheless, Spanish is still the ethnic ingroup language of the Mexican American community. There has been a significant community of Spanish speakers in San Antonio throughout the last 100 years. The community's long-standing geographic and social isolation from the English-speaking Anglo group accounts for the fact that Spanish is widely used within the Mexican American community now in the 1990s, not only by monolinguals, but also by bilinguals, who use English at the workplace but Spanish at home, church, and neighborhood, which Fishman (1989) calls "ethnically encumbered" domains. One reason for the community-wide retention of Spanish may be the constant immigration to the area from the Spanish-speaking border cities in northern Mexico and southern Texas. An important reason for the high Spanish language retention in Texas--82.6 percent according to Sole (1990:41)--may be that the language is a tangible emblem of the Mexican roots of the community, and that speaking it is at once symbolic of resistance to Anglo oppression and a means to assert one's own ethnic identity. Ethnic identity has been shown to be an important factor in the maintenance of ethnic minority languages worldwide.

Not surprisingly, then, Hispanics who do not speak Spanish are likely to be reprimanded by community members for hiding their Spanish-speaking ability. Even people who only look Hispanic but are not, in fact, of Spanish-speaking backgrounds report that people who expect them to speak Spanish assume that they are ashamed of their heritage when they say that they can't speak it. My preliminary fieldwork in this community suggests that younger speakers--under 25--living on the West and South sides are still fluent in a variety of Spanish, altough their counterparts on the North Side are virtually English-language monolingual. Paradoxically, the economic upward mobility that has afforded one quarter of the Mexican American population the means to better housing in better neighborhoods appears also to have put them in a milieu in which their children cannot learn Spanish as they did, in their neighborhoods.

There is ethnic pride in the language in the community even though the local variety is not prestigeous internationally. In an international context, Peninsular and Latin American formal Spanish has a long cultural and literate tradition which has proven worthy of scholarly study. Locally, however, the popular dialect of Spanish is denounced by purists from other Spanish dialects as "corrupted" primarily due to a percieved extensive English influence. It is commonly referred to as "Tex-Mex" in the community by its speakers as well as by non-speakers. Interestingly, this pejorative label, which implies an inferior blend of languages, is not a deterrent to speaking it for local bilinguals. While San Antonians may apologize for their Spanish, the notion that it is not a legitimate dialect is a shared community perception and serves as another ingroup bond. This more positive view of the dialect may be attributed to the ethnic awareness movements of the sixties and seventies, important for minority groups across the U.S., according to Fishman (1989).[9]

I suggest also that a change in attitude toward the language of the community has been influenced by the change in how the community is perceived. Once viewed as uneducated, unskilled, poverty-stricken, and speakers of a "foreign" language, the Mexican American population is now largely English-speaking, better integrated into the Anglo community politically and geographically, and shares middle class goals for an improved lifestyle. Moreover, it is now envied for retaining its cultural heritage. Although the city's Hispanic heritage has always been important to the city's identity, by the 1960's there was increased activity in celebrating it (Fehrenbach, 1968:700).[10] San Antonio's major city-wide celebration is Fiesta Week in April, which is a ten-day series of special events, parades, and street fairs, over which "rules" *El Rey Feo* 'The Ugly King'[11]. Likely due to its Fiesta Week celebration and the identification of San Antonio as a very Hispanic city, the newest theme park, opened in May of 1992, calls itself "Fiesta Texas." Two Mexican holidays, "el 16 de septiembre (Independence Day), and "el 5 de mayo," the date of an historic military battle, are now cause for celebration citywide as well as in the public schools, receiving local media attention.

In a very real sense, San Antonio is the center of Mexican American culture for South Texas. Both in the fine arts and in popular arts, San Antonio is a leader locally and nationally. The city is the site of the yearly Tejano Music Awards, which celebrates the unique music of Texas Mexican Americans. The Guadalupe Theater, located on the West Side, is a major sponsor of Mexican American culture in the city. It funds--in part or in whole--art exhibits, book fairs, literary conferences, bilingual theater, a film festival, a conjunto festival, and offers a series of courses open to everyone in music, art, dance, and writing at nominal fees. Other support for Hispanic arts are found through the local branch of the Universidad Nacional Autónoma de México (UNAM) and the Centro Cultural Mexicano, both centrally located in the Hemisfair Plaza.

6.0 SPANISH, ENGLISH, AND THE MARKETPLACE

The great increase in the Hispanic market domestically and the opening up of trade with Mexico has created an awareness of the potential usefulness of Spanish for businesspeople, which, I propose, has also likely increased its standing in the community. Similarly, the passage of the North American Free Trade Agreement (NAFTA) meant the potential for increased commerce with Mexico. The fact that San Antonio is ideally situated geographically to be the U.S. hub of such international trade makes learning Spanish very desirable.[12]

San Antonio's Spanish-speaking population is an important force in commerce locally. In 1982, San Antonio had the fourth largest number of Hispanic owned firms, at 10,341 and also boasted the fourth largest Hispanic population in the country. Sales and receipts for these businesses accounted for 16% of the state's revenues. In terms of marketing outreach, the Hispanic market that has San Antonio at its hub consists of 28 counties and ranks fourth nationwide, with a total of 990,900 (U.S. Hispanic Market Study

1991:186). This figure represents roughly 49% of the population in the area. For the San Antonio SMSA (Standard Metropolitain Statistical Area), the Hispanic Almanac reports that this ethnic group is in a good position to maintain a high level of white-collar and skilled positions in the local work force in the near future, relative to other Hispanic communities in the U.S. (Strategy Research Corp. 1985: 166).

It is clear that being bilingual is an asset in the workplace for people who must deal with the public, particularly in the area of tourism, the leading industry in the city. There are a substantial number of Spanish-speaking consumers in the area, and various businesses wish to take advantage of this. Bilingual salespeople in large department stores may greet customers in Spanish if they look hispanic. Privately owned and run language schools and translation/interpretation services number 16 in the local telephone directory's Yellow Pages. There has been an increase in demand for courses in Spanish for the layperson.[13]

Speaking English is a "given" for employment viability in the city, and Spanish is simply a desirable "add-on" for those speakers who are motivated enough to learn it well for use in a formal register. While this is almost impossible for someone who begins studying the language with little or no previous knowledge, it is much more attainable for local Spanish speakers. This would argue for local native speakers to add a formal register to their native skills in order to improve their employability. Unfortunately, there is a perceived saturation of the market by people who are fluent in the local variety of Spanish. The value of having speakers who are skilled in multiple registers in Spanish is not widely recognized in the larger community. It is a common assumption that anyone with a speaking ability in any dialect of Spanish can also do translation and interpretation without additional training. People with such skills are not automatically guaranteed higher salaries. Nevertheless, oral fluency in Spanish is desireable in any applicant whose English fluency is also solid.[14] Hopefully, the positive re-evaluation of Spanish in the community may help to motivate the reactivation of Spanish language skills by passive bilinguals in the Mexican American community.

7.0 CONCLUSIONS

In this paper I have suggested that the language shift of the Mexican American population of San Antonio from Spanish to English has been slower than in other such communities. This has permitted enough time depth for social movements and political restructuring in San Antonio to have changed the status of this group economically and politically, which in turn has initiated a geographic reconfiguration of the group within the city. The Hispanic heritage of the city, together with the Mexican American middle class' awareness of the need to learn English while maintaining Spanish, has contributed to the identification of Spanish with the essence of San Antonio.

The cultural renaissance of Mexican American theater, art, music, and letters in San Antonio has given Spanish greater status in the community. Further, there has been an increased awareness both locally and nationwide in the potential economic individual and corporate gains to be made from knowing Spanish.

I return to the war and peace metaphor, because it is an apt one for describing the effects of language contact on the maintenance or shift of minority languages, particularly those in the United States. English can be considered the well-armed, well-paid, well-equipped batallion, with the wealth, power and influence of a major world nation behind it. The minority languages of immigrants can be equated with a poorly-outfitted band of volunteers who struggle valiantly with the courage of zealots, fighting a losing battle. The history of multilingualism in the U.S. has been one in which language oppression, masked as nationalism, has repeatedly led to language shift for immigrant groups, resulting in abandonment of the ethnic language. As a combattant against English, a world power, the immigrant language has usually been the loser. In San Antonio, the fact that both warring factions have co-existed over time in a city whose roots and population have historically been Hispanic appears to have led not only to peace among both parties, but possibly even a victory for the minority language.

NOTES

1. Giles, Bourhis and Taylor (1977) propose a unified "framework for understanding the role of language for ethnicity and intergroup relations" (p. 324), integrating their theories of ethnolinguistic vitality, speech accomodation, and intergroup relations. From these theories, the concepts of social categorization, social identity, social comparison, psychological distinctiveness, cognitive alternatives, and group strategies for social change are synthesized. The variables suggested under the concept of ethnolinguistic vitality (308-9) may be organized under the following headings: Status, Demography, and Institutional Support. Status refers to prestige variables such as economic status, social status, sociohistorical status, and language status; Demography refers to the numbers and distribution of the ethnic group members, and Institutional Support to the degree to which the language group receives formal and informal representation in the society. Their model proceeds from the assumption that it is the current vitality of the group that is relevant.

2. The greater metropolitain area encompasses 2,527 square miles, which includes Bexar, Comal, and Guadalupe Counties.

3. The derrogatory term "greaser" used to refer to Mexicans dates back to at least as far as the 1850s (De León 1983:15).

4. One student, a Mexican national new to San Antonio, recently gave the following anecdote in class. She was speaking Spanish at a party in an affluent part of town; many international visitors were there speaking various languages. After beginning a conversation in Spanish with a friend who had been here longer, the friend told her that they should speak English, because people might think that they were being talked about.

5. It is likely that this geographical segregation was the reason for Sawyer's suggestion that there was social isolation of Spanish speakers from Anglo English speakers, resulting in non-local pronunciations and non-local vocabulary in the English of bilinguals (1971: 379).

6. This area had formerly been the enclave of the "lower- and middle-class Americano" (Garcia 1991:38).

7. One historian credits LULAC as being the catalyst for a new Mexican American consciousness that transcended class, "Mexican in culture and American in ideas and ideology" (Garcia 1991:263).

8. In the charter document there was no mention of preserving and promoting Spanish nor the Hispanic culture, although there were pleas for the eradication of discrimination, opposition to racial prejudice, and promotion of equal rights.

9. At least one study done on a Texas college campus in the 70s shows that speaking Spanish was important in the context of a Chicano student group (Limón 1981), demonstrating that the speaker was a true ingroup member committed to the goals of the whole. Lack of ability in Spanish was an obstacle to those Hispanics seeking entrance to that group.

10. In August, the Institute of Texan Cultures, a research museum affiliated with the University of Texas at San Antonio, celebrates the state's multiculturalism with a four day Folk Life Festival, which includes a variety of non-Hispanic cultures as well as Mexican and other Hispanic influences. Although acceptance of some aspects of an ethnic culture, e.g., foods, holiday traditions, dance, music, and so on does not always make for greater acceptance of the ethnic language as well, acceptance of the outer manifestations of a culture can help create a positive attitude for wanting to learn the language of the culture.

11. In spite of its negative denotation this is a coveted title, earned by the community leader (male) that has raised the most money for charitable causes. During Fiesta week, even English monolinguals know what *El Rey Feo* means.

12. As one example, the border projects of the North American Development Bank, an outcome of NAFTA, is being administered out of San Antonio (de las Américas 1995:1).

13. Monolingual English speakers in San Antonio in different professions, e.g., telephone sales, radio broadcasting, have expressed a desire to know Spanish, saying that it would help them in their jobs. Research on Spanish language learning motivation is needed in order to estimate the extent of this sentiment and the degree of committment which it might receive.

14. Interestingly, Anglo professionals (for example, doctors) and businesspersons are likely to want to learn Spanish to communicate with patients or clients.

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ARABIC INFLUENCES ON SPANISH SYNTAX AND SEMANTICS

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The aim of this paper is to take a closer look at the contributions of Arabic to Spanish by considering syntactic and semantic as well as lexical items that differentiate Iberian Romance from other Romance languages but are similar to Arabic. Such contributions must be seen in the context of the Latin origin of Spanish, since the Latin foundation is clear even from the lexicon. Thus, of the one thousand most frequent words in Spanish listed in Juilland and Chang-Rodriguez (1964), only two words have Arabic etymology. These words are *azul* 'blue' and *árabe* 'Arab', which are traced back to Arabic in Corominas (1954). The Old Spanish variants *alárabe* and *alarbe* contain the Arabic article *al-*, which supports the claim of an Arabic rather than a Latin origin for *árabe*. Most of the highly frequent words have attested Latin antecedents.

However, if we look at semantics instead of just frequency, we find Arabic loans in central areas of Spanish life, and this has long been noticed. For example, de la Torre (1787:v-vi) gives nouns for food items (*arroz* 'rice', *naranja* 'orange'), family ceremonies (*boda* 'wedding'), containers (*barril* 'barrel', *cántaro* 'water jar'), war (*batalla* 'battle'), a domestic animal (*gato* 'cat'), and even an indefinite pronoun (*fulano* 'so-and-so, someone'). Whereas de la Torre bases his claims on the existence of similar Arabic words which he cites, not all of his loans are accepted by contemporary etymologists who must invoke other criteria besides similarity. While *arroz* 'rice', *naranja* 'orange', and *fulano* 'so-and-so' are accepted as arabisms by Corominas (1954), *cántaro* 'water jar' is not mentioned, *gato* 'cat' is derived from Late Latin *cattus* which is of uncertain origin, *batalla* is said to be from Late Latin *battualia* 'fencing', *barril* is traced back to a cognate *barrica* 'barrel' from a hypothetical Vulgar Latin *BARRĪCA, and *boda* 'marriage' is argued to come from Latin *vōta*, the plural of *vōtum* 'vote, promise'. Where Corominas gives a clear etymology supported by dated attestations, we must accept the results of his scientific etymological method. But where words are claimed to be of uncertain origin, traced back only to very Late Latin, or claimed to come from hypothetical reconstructed forms, they may more likely have come from an attested word in Arabic. It is also possible for a word to have a demonstrably multicultural history of traveling through several languages. For example, the word for the stringed musical instrument that in Greek was *kithára* 'cithara' became Arabic *kītâra* 'cithara' and later Spanish *guitarra* 'guitar'. Since it lacks the voicing contrast between [k] and [g], Arabic played a role in the change of voicing of the initial consonant between Greek *kithára* and Spanish *guitarra*. Corominas (1980) points out that, because Latin stresses *cithăra* 'cithara' on the first syllable, the Spanish *guitarra* most likely comes from the Greek via Arabic, since all three of these languages stress the word on the second syllable. The point made here is that the influence of one language on another is never a simple one-way street.

It is common knowledge that Arabic has contributed many nouns to Spanish, and standard manuals such as Spaulding (1962:58) state that the initial *al-* or *a-* in these nouns was originally the Arabic definite article *al-*, where the *-l-* undergoes assimilation to certain consonants.

In a recent study, Maíllo Salgado (1991) gives data that confirm the claim that Spanish prefers to borrow Arabic noun phrases with the definite article rather than simple nouns without the article. Of the 284 loanwords studied by Maíllo Salgado, 160 items or 56% begin with the Arabic definite article *al-* or *a-*. In this book about Arabic loans in the Spanish of the late Middle Ages, all of the loanwords are nouns. Why do the majority of loanwords enter Spanish with the article? The reasons lie in the structure of discourse. These words were certainly borrowed through the spoken language, because readers and writers of Arabic can easily distinguish and separate the written article from the noun. When Spanish speakers borrowed Arabic nouns that occurred more than once in an utterance, they often borrowed the noun with its accompanying definite article, so that a noun phrase and not simply a noun was borrowed.

In studying the historical influence of Arabic on Spanish, we soon notice that etymologists disagree. Moreover, since most Romance linguists know Latin and Spanish well but have little or no knowledge of Arabic, etymologies are biased in favor of European languages and against Arabic. Even when very credible Arabic etymologies are proposed, they may not be accepted or widely cited. For example, Brown (1938) carefully examines the meanings and forms of several pan-Romance words and traces them back to borrowed Arabic roots.

Thus, Brown (1938:8) derives Spanish *tapa* 'lid, cover' from Arabic *tabaq*, which has the same meaning. Since Arabic does not have the distinctive voicing for labial stops found in the Spanish minimal pair /p, b/, Arabic /b/ can be borrowed as Spanish /p/. Moreover, Brown (1938:8) also writes that /q/ is deleted at the end of a final syllable in many words. It would not surprise a phonologist that the pharyngeal /q/ would be dropped after the back vowel /a/ when a word is borrowed into Spanish, which lacks the pharyngeal consonant but has many words ending in *-a*. Despite Brown's lengthy justification of this etymology, we find that Corominas (1980) claims that Spanish *tapa* is "probably from the Germanic, perhaps from a Gothic [form]" reconstructed as **TAPPA*.

In the same monograph, Brown (1938) proposes that Spanish *pato* 'duck' comes from Arabic *baṭṭa*, which refers to the same animal. As we have seen, Arabic /b/ can correspond to Spanish /p/, and the masculine Spanish ending *-o* can replace the Arabic final *-a* in a morphological substitution. Yet here again, Corominas (1980) proposes a non-Arabic etymology, since he says that *pato* 'duck' is "from the same onomatopoeia that gave *pata* ['paw, foot'], with reference to the heavy gait of that animal." I would argue that where a plausible Arabic origin exists, it should be preferred to either a hypothetical reconstruction or to an equally hypothetical onomatopoeia. By following this procedure, we would find that Arabic has had a greater influence on the Spanish lexicon than etymologists like Corominas would admit. I should point out that the two etymologists sometimes agree on an Arabic origin for a Spanish word. For instance, Brown (1938:44) traces Spanish *jaula* 'cage, bird cage' back to Arabic, and Corominas (1954) writes that *jaula* comes from Hispanoarabic *qafaṣ*. But Corominas (1980) says that it comes from Old French *jaole* 'cage'. It is encouraging that Brown and Corominas sometimes agree, and such agreement would occur more often if Corominas hypothesized reconstructed forms and onomatopoeia only as a last resort.

In addition to contributing word roots, Arabic influenced Spanish in the syntax of word formation. Baldinger (1963:66-7) says that the prefix *a-* took on a factitive, or causative, meaning in Spanish and Portuguese through the influence of such pairs of words as Arabic *māta* 'to die' and *amāta* 'to kill'. According to Baldinger (1963:68), Old Spanish thus had *amatar* 'to kill' as well as *matar* 'to kill'. This is a semantic addition to an already existing prefix in Romance languages, which had the prefix *a-* from both the Latin verbal prefixes *ab-* and *ad-*. However, there is also a Latinate source for causative *a-*. Using elements of Latin origin, Italian formed the similar verb *ammazzare* 'to club to death', derived from *ad-*, *mazza*, and *-are*, where *mazza* 'club' comes from Vulgar Latin **matea*, which is attested in the Latin diminutive *mateŏla* 'club' (Migliorini 1965).

Moreover, Arabic has also contributed the suffix *-í* to make nouns and adjectives from some proper nouns, as in *kuwaití* 'Kuwiti', *iraquí* 'Iraqi', and *ceutí* 'of Ceuta' (Lang 1990:194). However, Lang (1990:194) puts too narrow a condition on the distribution of Spanish *-í* when he writes, "The productivity of *-í* is restricted to specific country and city names of the Middle East, of Spanish territories in North Africa, and a few place names in southern Spain." Spanish authors certainly do use other adjectives in *-í*, as in *las traducciones alfonsíes* 'Alfonsine translations' (Galmés de Fuentes 1955:216) and *la Escuela alfonsí de Toledo* 'the Alfonsine School of Toledo' (Alonso 1964: 145). Since more than one author uses the word in more than one form, the adjective *alfonsí* 'Alfonsine' is part of the language and is not simply a mere nonce-form. Thus, Lang's limits on the use of the Spanish suffix *-í* are too restrictive and should be extended to other words that may show Arabic characteristics. Once again, further investigation of a problem shows a stronger Arabic influence than was previously acknowledged.

In contrast, some data may give an impression of too great an influence of Arabic on Spanish. For instance, early translations from Arabic to Spanish were sometimes very literal as a result of the procedure used. According to Alonso (1964:145), "a Jew or a Mozarab orally translated the work into Vulgar Romance or a barbaric Latin, and based on this translation another learned person wrote the book in scholastic or university Latin." Later, under the impulse of Alfonso X, "the second, learned translator would render the Arabic or Latin work into Castilian prose" (Alonso 1964:145). Such a procedure might well yield an artificially arabized Spanish and give the impression that Arabic has influenced the Spanish language more than it really has.

An additional factor that may wrongly increase the appearance of the influence of Arabic on both languages is the presence of universals or universal tendencies in both languages. It is often observed that oral narrative prefers to coordinate simple sentences rather than to create complex sentences by adding many subordinate clauses. This characteristic shows up in the early stages of written literature as diverse as the Homeric epics and the poetry and prose of Old

French. Thus, blaming Old Spanish's overuse of coordinated sentences on Arabic influence is wrong unless we are discussing a specific text and its translation. We should thus reject statements like that of Alonso (1964:151), who wrote, "One of the clear conditions of the immaturity of medieval [Spanish] prose is the paratactic style of sentences repeatedly coordinated with the particle *e* 'and'. The frequency with which it appears in the works of Alfonso the Wise, and later in the writings of the 14th century, betrays its Arabic origin." Let us rather say that excessive coordination reflects a universal discourse strategy of orally influenced prose.

In contrast, analysis of speech acts can direct our attention to genuine Arabic influences on Spanish expressions of wishes, locations, appellatives, and greetings. Corominas (1980) traces Spanish *ojalá* 'would that' back to Arabic *wa sa llâh* 'and may God will'. Therefore, a common expression of wish in Spanish is introduced by an Arabic expression followed by a clause whose verb is in the subjunctive. The location of a position or time is expressed by *hasta*, which Corominas (1954) says comes from Arabic *háttà*, with dissimilation of *-tt-* to *-st-*. Since Arabic *ustaz* 'teacher' even today is used as a polite form of address, it is not surprising that etymologists such as Gómez de Silva (1991) traces *Usted*, the polite form for 'you', back to an Arabic word *?ustadh* rather than to a fusion of Spanish *vuestra merced* 'your grace' favored by Corominas (1980). Words used for calling people such as *hola* 'hey' or expressions of applause such as *olé* 'bravo' are traced back to Arabic by Mekinassi (1963), although Corominas prefers to call them expressive creations without assigning an Arabic origin. Indeed, Corominas objects to etymologists who derive the expression *olé* back to Arabic *wallâh* 'Oh, God!'. Where suitable Arabic forms exist, I would consider it more accurate to say that such words were highly expressive formations that came into Spanish through Arabic, where they most likely originated.

In conclusion, we have observed that Arabic has influenced the syntax, semantics, and lexicon of Spanish in many different ways. As we have seen, the important role of repeated nouns in discourse explains why many Arabic nouns came into Spanish with the definite article attached. We have also noted how the perceptual salience of exclamations and terms of direct address favor borrowing. Thus, notions of discourse structure and speech acts theory have pointed us in a useful direction for finding examples of Arabic influence on Spanish. We have also noticed the continuing debate over word histories that may include entrance into Spanish through Arabic. The most interesting fact is that much further work remains to be done on the influence of Arabic on Spanish syntax and semantics.

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BEYOND ENGLISH ENGLISH

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Just as Greek, Latin and French served as linguistic vehicles of ideas and artistic forms that crossed many national boundaries, English, too, has become a transcultural phenomenon, influencing young and old alike. Incursions of acculturation have occurred periodically throughout history, always in the wake of some type of hegemony, either physical or cultural.

This paper proposes to demonstrate the degree of pervasiveness and the complexity of the phenomenon referred to as linguistic borrowing, applied to Anglo-Italian loans. Borrowing, in this context, will include not only lexical transposition, but also the transporting of cultural concepts, bearing in mind that transporting is not equivalent to exporting when the article is meant to remain abroad, for, as we shall see, some terms produce a boomerang effect.

Since all language entails a social act, the use of loanwords can demonstrate tolerance or intolerance towards a specific linguistic group. Each new contact poses the dilemma of who will adapt to the other's language. Individuals on an equal footing dabble with pidginization, but large groups must settle the problem by acquiescence to superiority either of physical force, mechanical power or simply by acknowledging that the other possesses desirable goods, perhaps in the form of a better standard of life, at least perceived as such.

Transculturalism, transportation, translation, and transposition all have in common the passage from one group or place to another: Latin traducere, 'to transport or convey' lies at the base of all four closely-connected terms. And just as translation, the message-encoder, implies the making of choices when drawing from the lexicon at large, so does the appropriation of loanwords involve interpretation of sounds, surface representations and meanings.

An aspect of language reality, the loan phenomenon is as old as the movement of peoples, the result of a largely non-reciprocal contact between two national tongues, for it has always been the rule for the dominant tribe to impose its dialect on the vanquished, disdaining eventual language learning of the weaker tribe's idiom. In this regard, the victor is primarily a donor, rather than a taker. The specification of national tongues implies that any part of a lexicon that is taken from a national living tongue signifies that a part of the cultural characteristic of that linguistic community becomes part of the word-packet that moves. Thus, with time, the victor has donated not only a segment of its lexical tradition, but part of its cultural makeup as well: its value judgements, knowledge, and technology. The more donated, all the more the donator becomes aggrandized in the minds of the receivers, and probably in the minds of the donors, too.

It may just be that victors have been so lavish in giving because it is more fatiguing to receive. A recent example which supports this point is the way public opinion forced Robert Altman, the director of the film "Pret-à-Porter" to alter the title to "Ready-to-wear." The American public was not inclined to accept a foreign imposition which would have meant direct contact with something unfamiliar, forcing them to grapple with a smattering of foreign interpretation, both in the pronunciation of the expression as in the semantics. Indeed, the English title loses the cultural background of the French term which still anaphorically includes a change from what was the rule before the term was coined; that is, custom-made was the norm and modern 'pret-à-porter' encompasses an evolution and style of life which is lost in the English version. So this is a case where refusal to accept lexical innovation has meant cultural impoverishment.

That English is the uncontested world language of the moment is no controversial statement. Controversy may arise when trying to explain the reason for the phenomenon. When new linguistic habits simultaneously spread over many societies at once, the infiltration passes into the domain of sociolinguistics and, as for most human phenomena, many factors converge in this process.

The field is so vast that only two languages, English and Italian, will be considered here. I do not intend to go into niceties regarding the definition of a loanword. For the purposes of this study, a loanword has been interpreted as an utterance which conveys a concept brought in from another culture. In order to present as complete a picture as possible of the loanword phenomenon, the media-oriented corpus at the base of this study contains much informal vocabulary as well as technical terminology. Any and all language imports have been noted: common talk, radio and TV speech, and the press in general, including such transient literature as advertising leaflets and street posters. The object was to capture an underlying repertory of loanwords that might be considered reliably representative in the two languages. I am omitting specific reference to the Latin base of Italian as well as to the Germanic base of English because only those words that have entered English through Italian or have entered Italian through English are being considered, no matter the language of origin. The moment of entry is not as important as the fact that the loans are still part of today's active vocabulary, and the knowledge of how much the loan differs from its original state. It is not the intention of this study to discover the complete etymology of the words presented, but to show how much the loan differs from its original state, and to try to demonstrate the extended influence that the English language is wielding on contemporary Italian customs and mores. Surface representations, phonetic renderings, and semantic equivalences are primarily restricted to the last two decades of the twentieth century. This study would like to make Italian and English language users aware of the socio-psycho-linguistic roles played in language contact and in its subsequent process of assimilation or rejection.

The loan process began essentially as a measure of survival. The vanquished needed to communicate in order to obtain favor. Although less dramatic, knowledge of new discoveries and inventions is a form of survival, too, in order not to remain 'behind the times.' The prestige loan is another form of survival, limited to certain circles, be they political, social, musical, commercial, etc., where loanwords function as covert social evaluations. Loans may even enter through a different language, as in the case of numerous examples of Italian vocabulary which penetrated English via French and French items entering Italian via English.

A sense of inferiority certainly lies at the root of borrowing, not so much of intellect as of possession at a certain moment: something the other has that is missing or considered desirable in one's own language. The adoption of loans motivated by concerns of prestige may, in some cases, cause an existing native item signifiying more or less the same concept to be dropped. Where once "sondaggio" would have sufficed, today's media will prefer *exit poll* in regard to any type of elections held. *Shampoo* has practically displaced "lavaggio" just as *spray* has done with "spruzzo" and *ski-lift* with "sciovia". "Mutande" and "mutandine" (underpants/panties) have likewise gone out of style in favor of *slip*, a loan which has itself undergone semantic change while crossing the ocean, for its location as an undergarment has moved to the layer closest to the skin for both males and females alike. Consideration for compactness may also account for some terms falling into disuse as, for instance, *computer* has totally removed "elaboratore elettronico" from the daily spoken vocabulary.

By definition, donations are contributions that are given away: the giver loses its claim and the receiver is free to do with the article as he or she feels fit. Once a vocabulary item is given, the terrain becomes ripe to go beyond English English, for during the process of acceptance, that is, assimilation, the normal English lexis with its commercial brand names and cultural concepts is open to modification from all points of contact: phonetics, morphology, syntax and semantics. Communication with the victor no longer being a matter of survival, the loan process has passed into a phase of reproduction of its own. All the national tongues that have been touched by English have adopted and adapted more or less the same word concepts, thereby forming an umbrella blend that will probably be recognized as a true European or Global English variation in the next century: slightly differentiated from country to country, but nonetheless comprehensible to all English users.

Since the process is still evolving, we can only bear witness to what is momentarily happening in the single languages. The so-called 'borrowed' vocabulary gains local color, acquires native sounds, may change grammatical class and word order, expand or contract its semantic fields. English words are skillfully superimposed and mixed with native terms. English, then, even while remaining by and large a foreign language, mastered by a select few, is yet by no means an alien tongue since it is familiar to the whole populace of all ages. What we then have is a multiformity of terms for a single meaning. Some people call this language enrichment, others depauperization or bastardization. Removed from their original texts, the nude words are put to their conceptual, more universal, use.

Exactly how has Italian handled its innumerable donations? Magnetic attention-getters, loanwords are often placed in the headlines where, by appealing to the subconscious snob qualities in humans to be 'one up' on the neighbors, they seem most appropriate. Where but in an Italian magazine article title would the following utterance make sense: "Il rally ha il suo derby"(Famiglia Cristiana). The subject and object are both in English and yet Italians interested in sports will understand that an auto race tournament is being held somewhere. The title: "Fast food violento" (Panorama) draws attention by resorting to a well-known modern expression. "Un panel test sulla carne"(L'Informatore) lends scientific authenticity to whatever conclusions are being pursued through the use of scientific jargon. "Night and Day" (La Nazione) is an attractive substitute for the Italian equivalent of "Calendar of Events".

A new type of English has thus evolved: an English for foreign users---in our case, Italian English. A street sign indicating directions toward the *Bus Parking*, spelled *Parching*, has turned the participial adjective into a noun, so that it now specifies a parking area for tourist buses. Conversely, *Baby Parking* does not indicate an area for junior drivers, but simply refers to a place where children are cared for(L'Informatore), with the participial gerund in full function. A *Free* sign over a public parking garage informs potential clients that there is room for further parking, with no implication of an omission of payment. Unpressured to reproduce English for foreign acceptance, Italians, too, have taken to manipulating English words to suit themselves, confident that they will be understood, not necessarily by foreigners but, most importantly, by Italians!

The selection made of adjustable possibilities may appear spontaneous, but closer inspection reveals that very little is left to chance. The assimilation process is, in fact, one of translation or transposition in which transfer plays a part at different levels. The various phases of this process of nativization have been studied by many linguists, including C.C.Fries and K.L.Pike (1949), who posed the question of whether two or more systems coexist or whether the host language amalgamates the new pieces of the puzzle into the general layout. Lado (1957) focused on the problem of just how much "transfer" occurs from one language to the other, while Weinreich (1953) preferred to use the term "interference" on the part of the native language. Van Coetsem (1988) has chosen the term "imposition" when referring to the same reaction by the recipient language. Since language, as Van Coetsem states, "has a constitutional property of stability,"(1988) languages in contact tend to maintain their more stable domains, above all, their phonology. Assimilation, therefore, will assume a predictive behavior. Indeed, after observing the reactions which follow the meeting of the two linguistic systems of Italian and English, it becomes apparent that the variations which occur are not at all haphazard but quite regular, following set phonological and morphological patterns.

Taken as a whole, the basic outstanding characteristic of the surface representation of the entire assimilation process from English into Italian is economy. Sounds are simplified, the number of word-syllables is often shortened, and unnecessary plural designation is lost, both because the functional load is carried by the article and because phonological constraints do not favor a final consonant termination. The intrinsic desire for simplicity is none other than the normal process of pidginization over and over again. Incoming grammar devices which are unfamiliar tend either to be eliminated, substituted or adapted to the native system. Those features perceived as redundant or superfluous are drastically reduced, as in the case of the dropping of gender and inflection by English speakers and final -s deletion and graphic modification by the Romance language speakers. Simplicity is naturally a relative term inasmuch as what appears to be a process of simplification for one language will not seem so for another.

The degree to which functional loads differ between languages is an important aspect of global English. For Italian, the contrast between the twelve vocalic areas of English against its seven often appears so slight that phoneme merging becomes the norm. A clothing store name in Ischia offers an excellent example of æ/ɛ merging: *GIOIA END* (and) *VINCENT*; lax /ɪ/, absent from the Italian vowel inventory, is regularly reproduced as tense /i/ as in *SPRINT* or *KILLER*; *PLAYTEX* bras advertised on TV receive a more native pronunciation, closer to the graphic representation---[playtɛks]. Consonants, too, pose problems because Italian has fewer initial and word-final possibilities besides having shorter clusters. The overriding consonant-vowel (CV) pattern is so strongly embedded that it lies at the source of the stereotype Italian English accent. In order to maintain the CV rhythm, the Italian will instinctively add a shortened open /ɛ/ to the end of final consonant words. This balancing vowel is perceived as such an integral part of the word that it was written out on a publicity banner used to attract passing motorists on a country road between Pescia and Lucca: *E' UN FILME*. The reality of final vowel epenthesis is also visible in the two variants of MILORD: *MILORDE* and *MILORDO*, in Zingarelli's 1948 Italian Dictionary.

Since not all sounds bear equal complexity problems for each national tongue, the simplification of sounds will naturally vary from one language to the other. Whereas the inter-medial consonant cluster -mf- poses no problem for English speakers, the Italian speaker, unaccustomed to such a pairing of sounds, invariably perceives -nf- in the English rendering. Thus, *COMFORT*, when spoken, turns into [konfɔr], no doubt reminiscent of its Late Latin origins and Italian 'conforto'. The case of *TRAMWA*Y shows a similar shift in its calque:*TRANVIA*.

The syllable pattern of Italian being CVCV, to end on a consonant is therefore atypical. This may well explain why the English plural -s is normally deleted, thereby making the singular form invariable. Moreover, in the case of plurality, a final -s becomes redundant since the articles already show number. A few final -s plural loanwords do hold their own, however, often co-existing with the invariable form, such as FAN/FANS, signifying admiring enthusiastic humans. Interesting to note here is that not only may the singular signify the plural, but the plural form may also function for the singular! A complete autonomy for both coexists with no apparent awareness of a paradox.

Orthographic changes reflecting phonic realities occur regularly. The unfamiliar 'W' letter is invariably perceived as a "V" phonetically and often graphically as well: wafer>vafer [vafɛr]. 'Y' and 'J' are commonly replaced by 'i': linotype/linoti̲po, monopoly/monopoli̲ (the game). Initial deletion of aspiration is also typical: a hockey player becomes an *ocheista*, no matter whether the graphic 'h' was shown or not. *Ippismo*, from the *HIPPY* root (La Repubblica June 30,1995:43) and the phonetic graphic rendering of *HOOLIGANS > ULIGANI* are further examples.

The simplification of canonical grammar makes for more open-endedness, better enabling the language to hold prosodic meanings. For example, copula deletion, a characterisic of Black English, is also a trait of Italo-American English, and the latter is also prone to omitting the question auxiliary, "do," future "will," and subject/object "it." Paradoxically, users of this simplified grammar are perhaps less prone to be misunderstood than are those using the full grammatical structures because prosodic features like accentuation and intonation, facial and body gestures invariably accompany the less formal grammatical structure. Thus, what may appear as non-standard for prescriptive grammarians becomes standard for other Englishes. Perhaps linguists need now turn to discussing not only how grammar influences meaning, but also how meaning influences grammar.

A case of syllable reduction in an Italian word, most likely due to English influence, is *pacifista* which, derived from *pacificare*, did for some years survive as *pacificista*. However, acquaintance with English PACIFIST probably induced the Italian shortening of the word, drawing it closer to the English.

When there seems to be some doubt about which way to go in assimilating an unfamiliar sound or word, analogy steps in. For a while, both the original and the new term hold their ground, but the original will likely be the loser. English CAMPING SITE, a two-part noun indicating a special place for a form of outdoor living, is derived from the verb, TO CAMP OUT. In adopting the custom referred to, the Italians have abolished the second part of the compound and, so to speak, perfected the remnant by nativizing the English present participle by compounding it with an Italian noun suffix, -eggio: *campeggio*, letting the original *camping* by itself survive together with the neologism. Only time will demonstrate which term will take precedence. In English, CAMPING, with no term to designate GROUNDS or SITE, would be considered a truncated locution and the Italian significance would no longer be intact. Yet, in Italy, the shortened English version has now acquired the meaning of the entire compound, transforming the participial adjective into a full-fledged noun.

When a foreign element is blended into a single compound, an act of endearment has taken place: two concepts have given birth to a single new creation. At this point, there is no question that what has been blended can no longer be considered foreign, but a totally assimilated companion, on the same level. The components of two- and three-word blends are likewise to be considered as close friends at a particular moment in time, but not generally the closest of kin. Each element of the extended compound can exist very well apart because the close connection has been a temporary expedient. Nonetheless, it holds true that, once part of a blend, that term has a very strong stake in remaining a part of the host language. *Bot people* is a sarcastic takeoff of BOAT PEOPLE, signifying a class of Italians who invest in state treasury bonds called BOT (*Bu*oni del *T*esoro) and who were considered at risk of sinking for a time. Centro *Toning* Linea or Centro *Fitness* are immediately understood to be places where one goes to keep one's body attractive, no matter whether one has ever actually been taught the meaning of the two English words. The presence of 'linea' (body shape) in the former and the frequency of the term 'fitness' in TV commercials and magazines make for complete comprehension.

The onslaught of compound formations of the type so rampant in English may be influencing the systemic structure of Italian neologisms. Just as virtual fast food has somewhat unsettled the noon meal concept, so is the mode of creating neologisms following the English system of compounding which is simply another aspect of having things quickly. By having ever-ready compound concepts available that are capable of expressing our ideas in a concise manner, communication becomes quicker and less fatiguing since much of the effort involved in making mental searches for the correct vocabulary item is almost eliminated. The 'precious time' concept of television and the press where words are compacted or pronounced as quickly as possible, has passed into our daily lives where few people are willing to wait while an individual mentally searches for the desired words to better express an idea. Having ready-made expressions forces ideas to fall into set large-scale, widely-accepted categories. If someone is referred to as a 'Miss Italia' or a 'baby-fidanzato'(boy-friend), she and he will be quite easily classified all over Italy. Signs like *AQUASPLASH* or *AQUAPARK* will hold no secrets about there being water attractions in the vicinity. Likewise, *HOBBYLANA* (yarn shop) and *HOBBYLEGNO* (wood shop) pose no comprehension problems for Italians.

Thus, it gradually becomes evident that when language adoptions become so familiar that adaptations become second nature, then society is ripe for experimentation and puns. The linguistic instrument gets played upon and new creations are the result, some of which are so well conceived that they return disguised into the language they left as raw units. An example illustrating the reverse or boomerang effect is *HYPERCAMPO*, the name given to a single-morning seminar held in June at the University of Florence to discuss projects regarding management training. At first glance, it would appear that we are dealing with a compound made up of English HYPER and Italian CAMPO, but CAMPO is, in reality a compound made up of an English loan: CAMP with an Italian suffix. Latin 'campus' lies at the base of both terms and, indeed, CAMPO in its Italian form appears in seventeenth century England (Newcastle, 1988), however, it bears no association whatever with a group of promoters working toward a common goal, as is done in an accelerated workshop. Thus, CAMPO contains an underlying English sememe with an Italian surface representation. This supports assertions made by Bloomfield(1933) and Firth(1966) who upheld that meaning had to be connected to the social situation in which an utterance occurred. The loanword process is proof that concepts change with changing circumstances. In other words, if context becomes part of the meaningful unit, this explains the reason for the imperfections of mechanical translation. And this takes us to the root of all language transference, that is, to the deep level of an utterance containing an act of interpretation which takes context into consideration.

An example which combines the punning capacity of English and foreign blends with anaphoric context is the following single publicity utterance on a TV commercial running this summer: "Scusate, ma anche tua moglie aspetta un Philco?" (Excuse me, but is your wife expecting a Philco, too?") *PHILCO* being a pun on FIGLIO/child, phonetically transcribed as [filko] versus [filyo], Philco always pronounced with tense high /i/. A further example employs a tradename turned common noun, encountered from age two up: lo *SCOTCH*. While talking with his pal, a comedian takes out a roll of scotch tape and, pulling a piece from the roll, quips: "M'hai scocciato!" playing on the identical Italian pronunciation of the two words: [skɔč/skɔčato] and on the sememe of the Italian past participle which signifies 'to bore or annoy', meaning, therefore: "Stop, you've bored me enough!"

One final instance of Italo-English is the single word-comment of a cartoon which appeared on the front page of a newspaper and was shown on television after a day of heated debate in Parliament's lower House, called Montecitorio, where physical blows were exchanged: "MontecitoRing." It is a jab at the sport of actual boxing going on in Parliament and, at the same time, a participial pun on the sport of being a parliamentarian.

Calques, which I prefer to call concept loans, are in every sense true loans with the distinguishing characteristic of not being visibly foreign. The vocabulary items are translated directly into the host language, thus transplanting the concept alone. These content loans represent no less an invasion of foreign culture than do outright foreign lexical loans. The translation may even be erroneous, as in the case of *Gioco del Ponte* (Pisani, 1947), used for several years to refer to the card game of BRIDGE. Whether the semantics of the segment shifts much or little, an innovation has occurred, bearing in its wake a new element from a foreign culture. Calques were more frequent from 1850-1950 when English was not so widely known and especially when linguistic intellectuals were against foreign tampering in internal linguistic affairs. The concept loan, *libero pensatore*, covers exactly the same semantic domain as does FREE-THINKER. The 'pret-a-porter' referred to earlier was itself a calque of English 'ready-to-wear' which tried to return to its native soil, but in such a transformed dress that it was rejected.

Finally, there is the case of it being an honor to accept the foreign expression into its own lexicon, naturally Italianizing the pronunciation. The acceptance of *latin lover*, typically non-capitalized, as for all language adjectives in Italian, demonstrates the Italian characteristic of willingness to adopt English vocabulary, even in this extreme case in reference to themselves. The fascination associated with the term would have been lost had it been translated, that is, calqued into 'amante latino'. In fact, there is a touch of pride in openly admitting in a foreign tongue that one is held in such high regard.

Specific social behavior may also influence borrowing. The Italian Mafia represents a specific type of organization which has been assimilated and exported worldwide, so that now the Chinese mafia or the Russian mafia are readily comprehended terms. On another tangent of illegality, a recent Italian vocabulary export, *TANGENTOPOLI* (whose translated English calque, *BRIBESVILLE*, is not as exotic), is characteristic of how a general manner of political dealing may be exported by means of a single word.

The wealth of vocabulary afforded by linguistic loans permits speakers to exploit this abundance in ways that signal complicated messages. Allowing for exceptions, words of Italian origin in English are more apt to appear in restricted contexts, especially to areas concerning classical music, art and food, whereas those of English origin in Italian will be reproduced in both formal and informal registers and in a wide array of contexts. Furthermore, it is a fact that, albeit receptive competence is always greater than productive competence, the Italian speaker at large is more inclined to produce English loans with fewer inhibitions and at a much higher rate of frequency than does the English speaker of its Italian loanwords. This, in itself, represents a form of communicative choice and social judgment. A recent example of the unbelievable uninhibited mixture in progress of the two languages is pop singer Lucio Dalla's recent hit. Right in the middle of his Italian text, sung in Eurovision on a special program in Naples dedicated to Enrico Caruso (June 23,1995) one hears: "Ah sì, living together" quite naturally pronounced as "leaving," sung with complete self-confidence of being understood by the thousands of appreciative Neapolitan spectators present and the millions watching the program on TV. Hybrid blends occur because the speaker is sure of being understood.

Loanword acquisition may thus be considered more a process of interactive compromise between cultures than one of a struggle between linguistic forms. Sociocultural factors of a particular moment in time intervene when new words are added to the lexicon. The nation that enjoys the highest esteem is a tyrant in disguise. English is still the victor's language, but the reason for its hegemony now is for access to technology and information. Mass communication, together with economic and psycho-social factors, have prolonged its imperialistic status. Data-banks and computer networks are predominantly in English worldwide and, according to Grabe (1988), the trend toward science and technology publication in English still appears to be on the increase.

Inevitably, however, just when the world seems closer linguistically through the acquisition of a common vehicle of international communication, a probable world economic shift will occur and a new "silent" invasion of new vocabulary will follow, giving rise to a new linguistic cycle. It is a historical fact that the high points of any movement occur just before they decline. Late Italian Renaissance art was mostly an art of mannerisms, following a certain master's way of artistic creation. Marlowe and Shakespeare's generation discovered the wonders of language and used vivid puns. That verbal play degenerated in the following generation into coarseness and preciosities of the type set forth by the succeeding lesser dramatists like Shirley, Fletcher and Beaumont. This same cycle seems to apply to loanwords. When the host language feels the incoming language is quite under control, it then gets used imaginatively, often playfully. The influence of what went before has become clear and the followers of the movement continue according to the conventions already laid down.

The coinage of new words reflects the human capacity for generating abstraction and the innate desire to be original and non-conformist. Many names of businesses reveal a variety of English that seems to delight in producing unusual pairs. The following are but a sampling: the name of a photo shop in Rimini is '*MISTER LADY*' which may allude to a wish to cater to both sexes or to a clientele of transvestites or perhaps it is a demonstration of the owner's cognitive deficiencies of the English language and simply offered a personal version of 'Ladies and Gentlemen.' At this point, the intention no longer matters; the expression is there for everyone to draw personal conclusions, but most importantly, it attracts attention and is understood by the prospective Italian clients. *WOMAN FASHION*, *YELLOW'S*, and *HOLIDAY'S SHOES* are names of shops in Florence; *LA BODY'S GYM* and *BODY BUILDING SOFT* are names of private athletic centers, while *BODY IN* designates a beauty salon. The name of a convention meeting in Florence in August 1991 was *TROPICAL MEETING ATMOSPHERIC*. A non-English use of English has obviously arisen that needs further study.

The climax of the peaceful English language invasion has probably passed, having brought about a language evolution but not a revolution. New concepts have entered Italian, new meanings have been added to old words, but the deep grammar remains solid. New or added noun definitions modify and enlarge the semantic component of language; they do not modify the underlying structures to any great extent. Worldwide technology has created a new type of global common sense, perhaps the long-awaited sixth sense common to all mortals. It is this part of language-motivation that lays the groundwork for cognitive linguistics, providing the extra-linguistic territory in which ideas are sparked. Language is awe-inspiring because of its ability to hold and regenerate complexity. The acceptance and coining of new words carries with it a sense of intentional positivity, the affirmative power of being at the helm. The heretofore passive receivers are taking the linguistic instrument into their own hands, leading it to their own shores, and are freely invading their own countries with this special brand of renovated idiom.

To conclude, what we have beyond English English is a voluminous semi-language of bits and pieces that becomes incorporated into each separate foreign language at will. Without constituting a structured alternative to the host tongue, floating bits of English are readily grasped in lands all over the world in a self-serve manner. No longer mere loanwords, the bits and pieces constitute an unstructured, yet compact, conglomerate of floating English vocabulary items that have already lost their novel quality of alternative to the host tongue, but which still maintain the prestige of a loanword. What the foreigners do with the myriad of English bits at their disposal might even be so innovative and desirable as to return to the native English-speaking soil in a new form or significance, to the point of pushing the original terms into obsolescence.

Will the influence of all these non-native English speakers bear enough force to modify the basics of English? It is highly unlikely. What more probably lies in the future is that economic interests of such proportion will favor a further linguistic invasion, this time from the Middle or Far East, powerful enough to wield a profound impact on English English and replace it as the world's best-known language. Anglo- and Italo-Japanese blends have already furtively appeared on the printed page, such as the Japanese wholesale company name, "*Americaya* shoes Trading," (La Nazione-Pistoia, July 20,1995:III) and *Scuolamikaze*, an article title (Il Sabato, Sept.28,1991:44).

This testimonial to language blending is actually a reflection on the amount of human blending in progress all about us. It makes no sense to question the process, whether it be beneficial or detrimental to the underlying structure; all that can be done is to recognize it and hopefully learn from it. To set up special academies or committees in defense of one's native tongue against foreign contamination such as occurred in Italy in the sixteenth century in defense of the new vernacular and under the Fascist regime and that still intermittently appear in Italy and France and probably other nations, is unrealistic. Ethnic ambivalence has simply stepped out of the closet and is claiming acceptance as another fact of life.

Just as all speech is time-bound, that is, transient, the loanword process is largely a passing phenomenon, especially whenever it does not fill a definite lacuna. Nonetheless, every item leaves an imprint once it becomes part of the written lexicon, thereby acquiring official status. Although some loans remain graphically unassimilated, some get partially adjusted and others acquire a totally new guise, a linguistic interaction has occurred for each transposed loanword that has signified some temporary or long-lasting enrichment for the host language.

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ONE SOURCE OF LEXICAL TRANSFER: 'PSYCHOTYPOLOGIES' OR SIMPLICITY CRITERIA?

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I will begin by saying that my main purpose is not to argue for or against the existence of psychotypologies, or for that matter, any other macroscopic hypothesis dealing with second language acquisition (SLA), such as Krashen's (1975, 1985) Monitor Model, Selinker's (1972) Interlanguage, Newmark's Ignorance Hypothesis (Newmark & Reibel, 1968), and so on. Rather, my primary purpose is to outline in a preliminary form the essential features of a microscopic model employing a small number of theoretical 'primitives' -- from which the macroscopic features of SLA can be predicted. After discussing some preliminaries surrounding the theoretical framework from which this model is in the process of evolving, the model itself will be briefly outlined. Finally, some examples of lexical transfer will serve as a basis for the discussion of some implications of the model.

Preliminaries to a Microscopic Theory of SLA

Let me begin by outlining the assumptions behind this paper. These are not *a priori* assumptions, so perhaps I should be careful about calling them 'assumptions' at all. Each one can, I believe, be justified independently. However, limitations of space prevent me from discussing here each such point in detail.

First of all, the current model is based on a relational network view of language, that is, one in which language is seen as a network of relations linking meaning and sound. That a linguistic theory should relate meaning and sound seems self-evident, even trivial. However, a relational network model does so explicitly, not implicitly. While it is possible to say that an item-and-process (IAP) model relates meaning and sound, such a model can do so only implicitly. The theoretical framework that lies behind IAP models forces them by definition to focus on abstract variables and operations performed on these variables, not on relations between meaning and sound *per se*.[1] Relational network models, in contrast, focus explicitly on relations, not on variables and operations (Lockwood, 1973; Sullivan, 1975; Lamb, 1985; and others).

The second of my preliminaries follows from the first. A relational network view of language would seem to render many issues surrounding Universal Grammar (or UG, in the Chomskyan sense) moot.[2] A biologically innate UG is a theoretical construct necessitated by the IAP view of language. IAP models are intrinsically very complex, leading to what Chomsky (e.g., 1986:7) refers to as 'Plato's Problem' (the so-called 'poverty of stimulus' problem, to be solved by positing UG (op. cit., p. 46). In his view, the Language Acquisition Device (LAD) is to deal with language acquisition 'not as a problem of acquiring rules, but... of fixing parameters *in a largely determined system*' (151, italics mine). Thus, positing UG amounts to a claim (or perhaps more accurately, an admission) that an IAP grammar is inherently unlearnable. (Less charitably, some might even suggest that UG is more than anything a mechanism for excluding certain data which provide conclusive falsification for certain IAP models -- but that is another issue.)

A relational network view of language, on the other hand, shows great promise of permitting the definition of a very different sort of LAD, one which adheres to general principles of operation as well as more precisely formulated heuristics for building up the grammar, which in this case consists solely of a network of relations between meaning and sound.

Two general principles governing the operation of the LAD as it is envisioned here can be termed the Minimal Additional Principle (MAP) and the Generalizing Reduction Principle (GRP). The MAP states that the Lad will add no more to the learner's relational network than it absolutely must in order to deal with inputs to the system. The GRP says that the LAD will attempt to eliminate the duplication of relational subnetworks, i.e., to generalize relations and in the process reduce the overall complexity of the relational network. Logical necessity calls for both or the result will be a relational network which grows without bounds. (Consideration of the specific heuristics which would implement the MAP and GRP is unfortunately beyond the scope of this paper.)

The relevance of these two principles to the question of lexical transfer is, I hope, obvious. L1 can be used by the language learner to process compatible inputs in a target language (TL), e.g., when TL cognates bear sufficient similarity to their L1 counterparts. The LAD, in accordance with the MAP, should resist modifications to the learner's developing TL system in such cases, since comprehension occurs without a change in the status quo. Consider, for example, the observation that what are typically regarded as L1-influenced transfer errors in TL pronunciation seem to persevere longer in TL lexical items with L1 cognates than in other, TL-only items (Yoshida, 1977; Coleman, 1987a).[3]

Before going any further, however, I would like to consider the nature of transfer in general.

On the Nature of Transfer

The prevailing view of transfer phenomena is one in which the L1 and TL of the learner are viewed as two separate systems existing side by side, each with its own inventory of items and rules. Corder (1983:89), for example, sees structural transfer as operating 'between the two mental structures of the mother tongue and the developing interlanguage'. The learner's version of the TL is thus seen as undergoing a process of closer approximation to the TL of a native speaker. The term 'interlanguage' (IL) is originally Selinker's (1972). Transfer, in this view, occurs when items are ported from L1 into the TL. The term itself was clearly chosen to suggest a copying of elements from an L1 inventory into a TL inventory. See Figure 1. This view of transfer is totally incompatible with a relational network approach. The copying of elements (i.e., relational subnets) directly violates the MAP. At the same time, it produces an effect exactly the opposite of that produced by the GRP: a proliferation of duplications within the linguistic system overall.

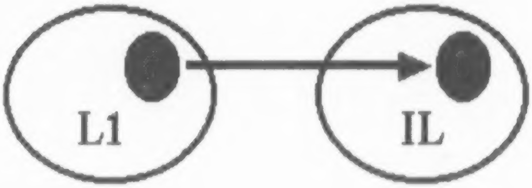

Figure 1. Conventional view of L1 to TL transfer.

In fact, strict adherence to the MAP would require the LAD to rely on pre-existing subnets of the L1 relational network in the construction of the IL whenever doing so would result in greater economy.[4] In the case of a learner who already possesses competence in more than one language, this can be generalized even further: the MAP would require the LAD to 'patch onto' pre-existing subnets of any previously acquired language (or IL) system whenever doing so would be more economical. *This provides a view of 'transfer' in language learning in which nothing is 'transferred' anywhere.* Rather, the LAD builds each L_n onto the existing network(s) for L1 (and L2, L3, ...L_{n-1}). See Figure 2.

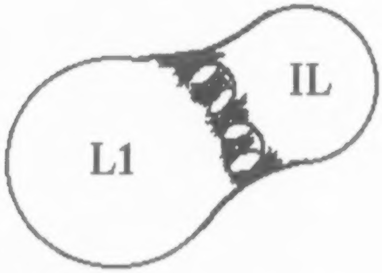

Figure 2. IL as a series of 'patches' on L1.

These are two radically different views of what transfer is. In the view of transfer that derives from an IAP framework, transfer is a phenomenon that is rather difficult to explain. Recall that in an IAP framework, the LAD is a device which selects from the inventory of UG in the process of building the learner's L1 system.

Now, why -- in building the TL system -- should the function of the LAD be modified so that it *sometimes* selects not from the UG inventory, but restricts itself to that of the L1? Why, indeed, should this happen, since the result will sometimes be so-called 'negative transfer'? In sum, in order to account for transfer in an IAP framework, one has to be willing to accept the idea that the LAD completely changes what it does in order to deal with second language acquisition (SLA) -- despite the fact that this is often supposedly a change for the worse. In a relational network approach, however, transfer phenomena do not require extra assumptions or mechanisms, but are a natural side-effect of SLA: the MAP alone is sufficient to guarantee that they will occur.

In addition, a relational network approach suggests certain ways in which transfer is likely to happen. One of these -- TL use of L1 cognates -- I discussed in an earlier paper (Coleman, 1987a). I would now like to go one step further and consider the situation in which there is not only an L1, but one or more possible sources of lexical transfer -- i.e., the target language is L_n and the possible sources include L1, L2, and others through L_{n-1}. In any given case, which of these possible sources will actually result in transfer? Some have argued (e.g., Singleton, 1987:327) that

> the second language (L2) learner's perception of the distance -- that is, the degree of typological relatedness -- between two languages will strongly influence the extent to which he or she will attempt to transfer from one to the other.

This view of the prominence of psychotypology, or perceived relatedness, in affecting the language source of transfer finds its major proponent in Kellerman (e.g., Kellerman, 1983).

On Psychotypologies

It is not my intention to disprove the existence of psychotypologies -- I do not see it as my purpose here to debunk anything. However, as an explanation psychotypologies are not very satisfying, for three main reasons.

First of all, there seems to be some confusion in the supporting literature as to exactly what a psychotypology is. Singleton (1987), for example, presents a case study of the transfer errors (primarily lexical) in French of a native speaker of English who also has knowledge of Spanish, and to a significantly lesser degree, of Irish and Latin. Spanish 'was hypothesized to be a privileged source of transfer' on the basis that it 'is the one typologically closest to French' (330). It is significant that Singleton does not say 'the one believed by the subject to be typologically closest to French'. If indeed it is a psychotypology formulated by the learner that really matters, then the facts of typological relatedness are irrelevant. The subject of Singleton's case study -- referred to as 'Phillip' -- shows awareness of a relatedness among Latin, Spanish, and French. Singleton equates this with an awareness of the typological relatedness of the three languages. In describing Latin as the 'fountainhead of the Romance languages' (331), Phillip is revealing an awareness not of typological, but of historical facts -- facts which place Latin closer to French and Spanish than French and Spanish to each other. Perhaps Singleton takes these comments by his subject to be representative of a psychotypology because Singleton himself knows something about the typological features of these three languages. In short, the learner has a psychology, the researcher (Singleton) has a typology, but nowhere is there real evidence for a psychotypology.

Psychotypology correlates strongly with typology. Thus, this sort of confusion is extremely difficult to avoid. This leads to a second problem area. As something which is supposed to provide an explanation of what is happening, a psychotypology depends a great deal on a particular interpretation of the data: the researcher must somehow decide whether the typologies are actual or psychological. The 'test case' which the proponents of the notion of psychotypology need to obtain unequivocal support for their position is one in which the psychotypology is clearly at odds with the actual typology.

Here is a hypothetical example. Suppose a native speaker of Swiss German (L1) also has knowledge of Spanish as L2 and is learning Italian as the TL (L3). This learner knows that (a) Italian and German are both languages of Switzerland and Spanish is not, and (b) Italian and German are spoken in physically contiguous countries, while Spanish is spoken in a region contiguous to neither. Being a linguistically naive individual, the learner concludes that German and Italian are more closely related to each other than either one is to Spanish. Suppose, finally, that the learner's beliefs about this state of affairs can be accurately determined. In such a case, if German, rather than Spanish, is treated as a privileged transfer source, then there would be somewhat more convincing evidence for a psychotypology than we have at present. To reiterate, in all cases where the hypothesized psychotypologies correspond very closely to actual typologies, the data will at best represent ambiguous support for the relevance of a psychotypology.

Third, there is a presupposition (on the part of proponents) that conscious awareness of relatedness can affect comprehension and/or production in the TL. The degree to which conscious control can be exerted in a TL is not an uncontroversial issue, to be sure -- consider the debates on Krashen's (1975, 1985, etc.) Monitor Model which have remained unsettled for almost two decades.

Thus, as appealing as the notion of psychotypologies is, I would like to suggest that alternative explanations based on other, independently-motivated hypotheses are preferable. This is particularly so when the alternative explanations can be derived from basic elements of a microscopic model of SLA. My main purpose, then, is to suggest a step in this direction. Taking another look at some of Singleton's (1987:341-343) data will help in this regard.[5]

A Closer Look

First, I would like to consider Phillip's substitution of *pays* for *campagne* -- this is a common sort of transfer error at the lexico-semantic level (in relational network terms, it would perhaps be more accurate to say 'in the interstratal relations connecting the sememic and lexemic strata'). Both words correspond to English *country*, with *pays* having a meaning more or less like 'country, nation' (S/country.1/) and *campagne* something more like 'country(side)' (S/country.2/). Spanish has a similar distinction between the two forms *país* and *campo*. English does distinguish the realizations of these two sememes but much more subtly. The former is realized by the lexeme L/country/ alone, which is categorically a count noun (e.g., as in *a country, two countries, her native country*, etc.). The latter is realized in compound fashion by L/the / and L/country/ (e.g., in *a house in the country*). Other restrictions distinguish the two: for example, S/country.1/ occurs in a tactic subnet which contains realizates for the lexeme L/PLURAL/, while S/country.2/ does not.

Interconnected subnets of Phillip's relational networks for English and Spanish are diagrammed in Figure 3. Solid lines show L1 (English), grey lines, L2 (Spanish). Diamond nodes indicate points in the relational network which

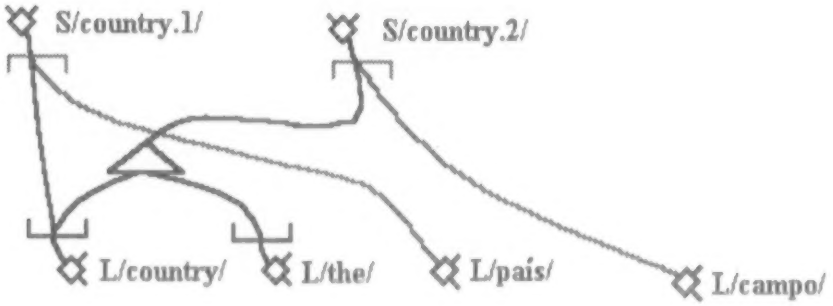

Figure 3. Realizations of S/country.1/ and S/country.2/ in L1 and L2.

correspond roughly to '-emic' elements in an IAP framework. Two '-emic' levels (strata) are shown: the sememic and lexemic. Following the usual conventions, on each diamond lines on the upper left and lower right sides relate and 'eme' with one or more 'emes' at another level. The relationship between S/country.1/ and L/country/, for example, is shown in this way. Just above the English L/country/ is an upward-facing OR node (the bracket-shaped node) joining the lines from S/country.1/ and S/country.2/ to the lexeme L/country/; this describes the lexical ambiguity of *country*. Lines on the upper right (or lower left) of a DIAMOND node relate an 'eme' to other 'emes' at the same level (such details are not shown here, however, as they are of only peripheral relevance).

This figure also shows the hypothetical state of part of Phillip's overall network after acquisition of Spanish L/país/ and L/campo/. The MAP predicts that the additions made by the LAD to deal with inputs containing *país* and *campo* in L2 will be directly 'patched onto' the English subnet at this point. Notice the two downward-facing OR nodes -- just below S/country.1/ and S/country.2/. The left-hand of these permits S/country.1/ to be associated with L/country/ in L1 or L/país/ in L2 (depending on which subnet is activated).[6]

Figure 4 shows what has happened at a later stage after the LAD has modified the relational network to deal with French inputs containing *pays* and *campagne*. (The French subnet is shown in broken lines.) Note that adding L/pays/ and L/campagne/ is more economical than adding L/país/ and L/campo/ was, because the two downward ORs are already present.[7] Given the morphophonemic and orthographic similarities of *país* and *pays* and *campo* and *campagne*, it is easy to see why Spanish (as L2) should be the preferred source of transfer for these items over English (as L1) for the learner of French (as the TL). When Phillip first hears *campagne*, for example, he will be able to utilize a significantly larger part of the subnet associated with Spanish *campo* than that associated with English *country*. Simplicity of description accounts for the event; no notion of psychotypology is needed.

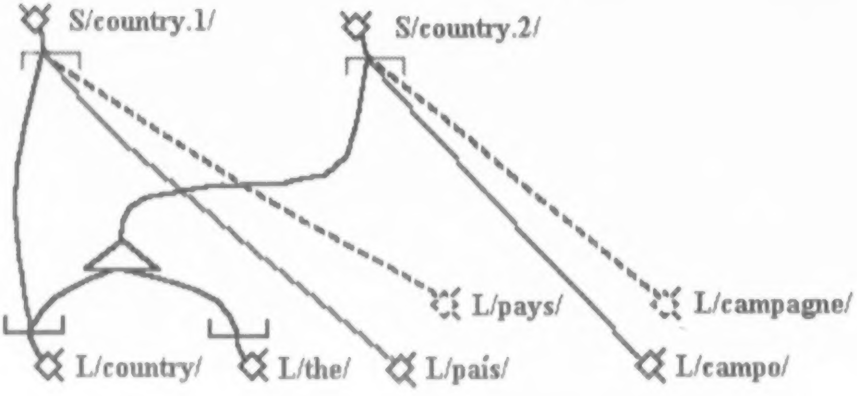

Figure 4. Realization of S/country.1/ and S/country.2/, including TL.

I have also chosen this example, not despite, but because in over an hour and a half of recorded speech in French, Phillip produced only on error of substitution in uses of *pays* and *campagne*. Singleton (1987) suggests the following:

> At first sight, these [intermittent errors] appear to lend support to the behaviourist vision of competing sets of habits interfering with one another... however, ...the occasional production of transfer errors in a particular subpart of a target language may reflect temporary ignorance.

Singleton's interpretation seems no more compelling than the behaviorist position, perhaps even less so, since the behaviorist view of the situation was only one component of a larger integrated theory. 'Temporary ignorance' is more a description of the observable event, in any case, than it is an explanation of why this 'temporary ignorance' occurs.

A spreading activation model of relational networks (e.g., Dell & Reich, 1980) offers something more of a predictive explanation. In Dell and Reich's view, the processes of production and comprehension involve activation of parts of the overall relational network. For example, to produce an output containing L/campagne/, Phillip's relational network would be activated on the path leading down toward S/country.2/ (see again Figure 4). This activation will continue downward, spreading out along three available paths when it reaches the OR under S/country.2/. From this point it will proceed down to the upper left-hand side of the DIAMONDs for L/country/, L/campo/, and L/campagne/. If the lexemic subnet for French has been activated, the only one of these three DIAMONDs whose upper right-hand line has been activated is French L/campagne/. This makes L/campagne/ the most probable output. However, in a spreading activation model, the activation reaching L/country/ and L/campo/ will result in negative feedback signals travelling upward. A negative feedback signal from L/campo/ can go only to the OR under S/country.2/. Negative feedback from L/country/ can go here too, but also to the OR under S/country.1/. If Phillip has so far been more strongly acquired L/pays/ than L/campagne/, even a small amount of 'noise' in the system could result in the activation of L/pays/ at this point in preference to L/campagne/.

In sum, a spreading activation interpretation of a relational network model not only 'automatically' accounts for the existence of transfer as it is generally conceived but also for specific phenomenon such as intermittent lexical substitution errors of the *pays/campagne* sort. It does so without the addition of a macroscopic hypothesis to deal with a special case, like Singleton's 'temporary ignorance' hypothesis (1987:335).

Another error discussed by Singleton is Phillip's use of [vɔ] for French *voix* 'voice'. He suggests this as an example of transfer which can be explained in terms of 'assimilative encoding'. In an assimilative encoding account, 'the crucial factor is the precise form of the entry' of the newly-acquired TL item in the learner's memory (Singleton, 1987:337). He hypothesizes that there was 'a reasonable chance that Phillip had actually encountered *voix* in speech addressed to him on previous occasions' (337), and that the subject was helped in decoding *voix* by his knowledge of Spanish *voz* and Latin *vox*. (It is unclear why Singleton discounts the possibility that English *voice* could also be involved.)[8] Except that it still is based on a view of transfer as in Figure 1, above, the assimilative encoding account bears some similarity to the role of the MAP in the current model.

Figure 5 shows a subnet of the L1 system (solid lines/nodes) -- M/voice/ and its downward connections to the phonemic stratum, with L2 (Spanish) in grey lines, and L3 (Latin) in broken lines. As you can see, the LAD has added three 'patches' for Spanish. Two are specifically to deal with Spanish *voz* by (a) deselecting the P/j/ off-glide and (b) making M/voice/ available to the Spanish morphemic subnet. The third (c) is a general patch to the phonological system, adding connections for the Spanish phoneme which alternates between [b] and the bilabial fricative [β]. Two more patches, for Latin, (d) select P/k/ in place of P/j/ in the phonological realization of M/voice/ and (e) make the morpheme available to the Latin morphemic subnet. The resulting overall network relates M/voice/ to a phonemic sequence P/vɔ-s/, where '-' represents either P/j/, P/k/, or nothing.

When *voix* is received as an input, the LAD will attempt to patch the existing system, this time for the new TL, French. The P/j/ and P/s/ lines will be completely unactivated, so the LAD will add a patch to deselect them (much like the one to deselect P/j/ for Spanish *voz*). Dealing with the initial consonant cluster, however, is slightly more complex. The French [v] can be processed through the subnet for the English P/v/ with no difficulty. Thus, the solid line leading up to the P/v/ will be activated. Recall the patch to P/v/ for Spanish at (c) -- it will process the [w] of *voix* [vwɑ] without too much trouble, because of its similarity to the bilabial fricative [β]. Given the need for flexibility in the system, it will thus be relatively difficult for the LAD to identify the fact that the OR node at (c) is doubly activated.

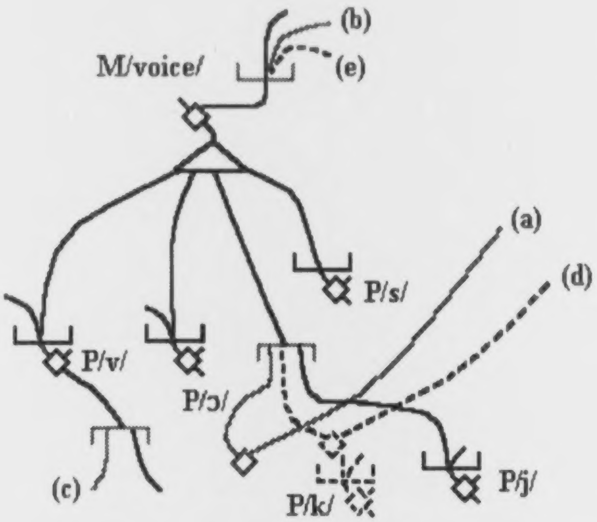

Figure 5. English (L1) with L2 (Spanish) and L3 (Latin) 'patches'.

At this point I would like to comment on Singleton's use of self-observational data elicited from his subject Phillip. He says (1987:331), 'Any evidence relating to the actual process of transfer was taken from the self-observational data'. For example, Phillip uses [tʃun] and [tjʊn] (attributed to English *tune* -- one occurrence of each) in place of French *accorde*, [pɾis] and [pɾi] (cf. Spanish *tener prisa* 'to be in a hurry') for *hâte*, and [ɑⁿsignifi'kɑⁿt] for *insignifiant* (333). In all three cases, Phillip claims to be 'guessing'; e.g. with [ɑⁿsignifi'kɑⁿt] he says he is 'chancing his arm' (335). Singleton takes this as support for Newmark's Ignorance Hypothesis.

In the case of [tʃun] / [tjʊn] and [pɾis] / [pɾi], it seems clear that past inputs in French did not cause the LAD to patch onto English *tune* and Spanish *prisa* at the morphemic level. These would appear to be cases in which the system is using non-TL forms but is simply outputting these forms with the patches for the TL phonemic subnet activated. Cross-subsystem processing (e.g., L1-TL or L2-TL) of this sort should result in weaker activations, and hence, greater variability in the form of the learner's outputs. (Note the variability in the learner's productions based on English *tune* and Spanish *prisa*.) The corpus of Singleton (187) is not large enough on which to base any firm conclusions in this regard, but it shows agreement, as far as it goes.

Phillip's use of [ɑⁿsignifi'kɑⁿt] for *insignifiant* is something else altogether. There is no way to safely say that Phillip had never before heard the TL form. Even if he had not, he might have acquired all the necessary components to a subnet he needed to produce something like it. He may have heard a related form, such as *signifier*. It is unlikely that his LAD had not already produced patches for the French negative prefix *in-* [ɑⁿ] and the ending *-ant(e)* [ɑⁿ (t)]. In short, it is impossible to eliminate a possible role for prior linguistic experience in Phillip's production of [ɑⁿsignifi'kɑⁿt]. It seems advisable, therefore, to maintain a healthy skepticism about his self-observational data.

It may appear from the preceding discussion that I am arguing against Newmark's Ignorance Hypothesis; in fact, I am not. Nor am I arguing against the notion of assimilative encoding. Rather, I am trying to demonstrate the preferability of a microscopic model which accounts for the same facts of SLA that these macroscopic hypotheses, among others, are intended to account for. The development of the model in the direction needed to account for these facts is still very preliminary, but it does make certain predictions about SLA. A central one is the view of transfer which it suggests. This is a view like that of Figure 2, one in which the subject's French IL is seen *not* as an autonomously developing system with 'transfer' (read 'transportation' or 'copying') of elements from L1 or other, non-native languages (as in the conventional view shown in Figure 1), but as a direct extension of the learner's previously-acquired linguistic system. Spanish is thus the most likely candidate for 'transfer' in the developing French IL on the basis of its greater similarity to the TL. I.e., if we assume the LAD always looks for the simplest way out when incorporating new elements into the learner's acquired system, we can predict that it will tend to establish the most points of contact in this case between the newly developing French IL and the already established Spanish subsystem. The simplicity criterion of the MAP provides an explanation for the same data as Kellerman's (1983) notion of psychotypology. But it does so in much more general terms viz a viz SLA. At the same time, it accounts for apparent exceptions to the more general predictions of Kellerman's hypothesis.

Notes

[1] See, for example, Lamb (1985) or any of a number of studies dating back to the late 1960's showing a lack of support for claims of the psychological reality of transformations.

[2] Despite any possible claims to the contrary, this position is not to be equated with the dismissal of the reality of language universals. The objection raised here is to the concept of UG as a biologically innate inventory of universals.

[3] The difficulty learners have in eliminating the effect of so-called 'false friends', such as English *fabric* and Polish *fabryka* 'factory' from their TL comprehension and production may be attributable in part to the MAP. (For a detailed discussion of false cognates, see Welna, 1977.)

[4] It would seem only reasonable to assume that individual differences exist in the thresholds for the application of the MAP and GRP. Such differences would have obvious effects on individuals' rates of acquisition, tendencies to produce overgeneralization errors, and tendencies for minor deviations between inputs and existing subnets to be ignored (i.e., for 'fossilization' to occur), at least.

[5] Despite Singleton's use of some descriptive statistics, the data from his case study must be considered mainly anecdotal. In addition, some of his attributions of language sources of transfer seem doubtful. For example, in the sentence **Nous sommes restes... pour trois annees*, Phillip produces *pour* in a context where French might permit *pendant* or zero (Singleton, 1987:341). Singleton counts this as a clear case of transfer from English (*pour* used as the 'primary counterpart' of *for*, to use the term of Arabski, 1979:142). However, Spanish would permit *...por tres años* in such a context. Why is Spanish not considered as a possible source?

[6] Actually, the MAP also predicts there will be a significant amount of interlacing of other types, in terms not only of realizational relations, but of tactic ones as well.

[7] In a more fully-developed version of this model, the LAD will form relations weakly to deal with new inputs; use of the new, weakly-formed relations to process further inputs will gradually strengthen them.

[8] Singleton seems in general to discount the relevance of TL input to the class of phenomena usually labelled 'transfer'. He admits (337) 'one can at least conceive of target language input being in some sense the initiator', but goes no further than this. No reason is given.

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CHINESE ARGUING IN ENGLISH

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Introduction

Saussure's notion of language as a social fact, a system of complex interrelationships, takes on particular meaning when we look at the process of presenting an argument. Composing a coherent argument involves not only the complicated, intricate balancing of the resources of the medium of expression with the purposes of the composer, but also the very social milieu within which the language user constructs and makes the argument. It is in this sense that language and culture are inextricably linked; and the unlinking that is required when one shifts to a foreign language is not just the adjustment to a new medium of expression; it means the extrication of one's very self from the culture of one's native language.

The tension and disharmony that results from an attempt to argue in a foreign language has what are often unrecognized, and certainly unconscious, origins lying not so much in the tension between the two languages themselves (native and non-native) as in the underlying fundamental assumptions of the two cultures: notions of how the world is constructed, what constitutes valid intellectual activity, and what it means to present an argument.

The philosophical and linguistic leap that is needed in order for Chinese to compose a coherent argument in English is a large one. To shift languages is to shift one's psyche, and the Chinese and American psyches are as far removed from each other as are their respective countries. There is little familiar in the notion of Western argumentation for Chinese to grasp on to. The very concept of forming a coherent argument in Chinese is often diametrically opposed to that of Western argumentation. For the Chinese, a successful argument is one that derives from the collective and historical; the best points are those that come out of their long literary tradition and conform to the Chinese value of collective knowledge. The Western tradition, however, values the unique, the individual insight, and places emphasis on the immediate as opposed to the historical.

Educational system

These differing foci are reflected in the respective educational systems of the two language communities. Education within China has deep roots in Confucian ideology. The Chinese learn by modelling and memorization of a collective knowledge base. Teachers in China see their role as being that of holders of this knowledge; that is, they must learn as much information as possible and pass this information on to their students. Students in China accept whatever teachers teach them as fact; they do not--nor are they expected to--question their lessons. Acquisition of knowledge--indeed, being learned--means being able to recite massive amounts of material, all classical in the sense of being deeply rooted in tradition, and reproduce and imitate set classical models. In this way, the Chinese people preserve and pass on shared cultural knowledge and mores. By contrast, Western-style education, particularly as it has developed in the United States and Canada, is one where students engage in inquiry, hands-on exploration, and self-discovery. Chinese students learn *what* ; American students learn *how* and *why* . American teachers take the stance of tutors, consultants, and, indeed, collaborators. They do not so much hold actual knowledge as the means to attaining it.

Another prominent feature of the Chinese educational system is its emphasis on morality and the social good. The Chinese culture is a collective culture, and the educational system is viewed as a tool for promoting social progress. Good writing and good oral prose is that which has a moral purpose that is readily discernible and easily applied. Individual forays into purely personal terrain are discouraged, as is stark, realistic prose that portrays life at the moment of its happening.

Above all, the Chinese educational system is pragmatic. Education in China is geared towards a specific, concrete goal: passing the Examination. This, combined with its Confucian base, makes learning in China narrowly-focused and highly-structured: there is a body of knowledge to be learned. The result is an educational system that is at once pragmatic and abstract, historically-grounded and immediately applicable.

Argumentative style

Argumentation for a Chinese involves memorizing all the possible points and counterpoints and then using them at the correct time. Argumentation for an American involves researching what others have thought on the issue and then going beyond this body of knowledge to an informed conclusion of one's own, taking into consideration personal experience and the immediate context of the argument. Chinese view knowledge as stable and enduring, and an end in itself. Americans view knowledge as transient and ever-changing, and a means to an end.

When Chinese argue in English, their arguments reflect more closely their Chinese origins than their English medium of expression. While this presents no problems whatsoever as long as they are functioning within the confines of their own culture and educational system, their argumentative strategies are less successful when they try to function within the larger English-speaking community. These problems arise not from the lexicogrammatical level of language but from the discourse level, the ways in which they structure and present their arguments.

While good English argumentation is direct, concise, and most often deductive, Chinese argumentation is indirect, abstract, and most often inductive. Chinese students are taught to "clear away the round-bush first" and then come to the point. The analogy is often made between the logic of Chinese argumentation and the peeling of an onion: when we peel an onion, we do it layer by layer until the core (the key point) comes out. Rendered into English, this kind of argumentation seems unfocused and opague, the main idea unclear.

Perhaps the best example of this comes from a speech given by Mao Tse-tung in May of 1942; this is his famous Yenan Forum on Literature and Art, and the speech is seen, both inside and outside of China, as an important pivotal speech of the Communist revolution. Mao Tse-tung, of course, spoke in Chinese. But both the written, edited Chinese version and the English translation are readily available and widely-distributed, and the English translation follows the argumentative line of the Chinese, dramatically illustrating the Chinese argumentative style and the problems one encounters when trying to render this style into English.

> Let us consider next the question of the united front in the world of literature and art. Since literature and art are subordinate to politics and since the fundamental problem in China's politics today is resistance to Japan, our Party writers and artists must in the first place unite on this issue of resistance to Japan with all non-Party writers and artists (ranging from Party sympathizers and petty-bourgeois writers and artists to all those writers and artists of the bourgeois and landlord classes who are in favor of resistance to Japan). Secondly, we should unite with them on the issue of democracy. On this issue there is a section of anti-Japanese writers and artists who do not agree with us, so the range of unity will unavoidably be somewhat more limited. Thirdly, we should unite with them on issues peculiar to the literary and artistic world, questions of method and style in literature and art; here again, as we are for socialist realism and some people do not agree, the range of unity will be narrower still. While on one issue there is unity, on another there is struggle, there is criticism. The issues are at once separate and interrelated, so that even on the very ones which give rise to unity, such as resistance to Japan, there are at the same time struggle and criticism. In a united front, 'all unity and no struggle' and 'all struggle

> and no unity' are both wrong policies--as with the Right capitulationism and tailism, or the 'Left' exclusivism and sectarianism, practiced by some comrades in the past. This is as true in literature and art as in politics.

The indirectness of this paragraph leaves native English speakers with only a vague sense of Mao's message. The paragraph seems to circle around but never zero in on a specific main point. The topic under discussion is unity in the world of literature and art, but precisely what this means or how it should be achieved is unclear. For Chinese, however, Mao's point is crystal clear: all literature and art should be specifically directed toward the cause of the revolution. This speech is often cited by Chinese for not only its historical importance but also its profundity and clarity of purpose. Mao is considered a brilliant orator, and this speech is considered to be among his best.

Mao's speech illustrates another feature of Chinese argumentation: it is highly moralistic and hortatorial. And while that flavor is certainly appropriate for this particular speech at this particular time in China's history, the hortatory nature of Chinese argumentation in general is apparent in even the most expository of writing and speech. This is realized in several ways. The most obvious is the use of imperatives and optatives. The following is from a student research paper on effective teaching methods:

> At school, a teacher cannot behave casually. Mostly, students make their teachers their idols to imitate. They often have no ability to distinguish things to tell the good from the bad. Teachers have the obligation to tell and show. [Richard]

Another student, writing about how to effectively organize one's time, argues:

> Learn something about time, cut out the wrong ideas about time. Use your time efficiently. [Howell]

Distinguishing between English hortatory and expository discourse is a difficult task for Chinese students. Their use of imperatives in an essentially expository argument gives the audience only half of the proposition: the topic part but not the comment part. Richard's first sentence above gives the *what* but not the *why* . A more expository version would have been: "a teacher who behaves casually at school fails to provide the model for good citizenship that students require." Richard's imperative structuring makes the argument seem categorically rigid. These imperative generalizations are most often without illustration or examples to support them.

If, for Chinese, the line between English hortatory and expository discourse is a fuzzy one, the line between the statement of fact and opinion is equally fuzzy. Along with the use of imperatives and optatives, students make liberal use of categorical statements that present what is opinion, or at least debatable, as absolute truth or fact. Within the Chinese culture, truth is viewed as absolute, and there is little room for varying opinion or extenuating circumstances. This truth may change, even from day to day, but at the moment of speaking or writing, there is only one true stance. By contrast, American students are taught to avoid categorical imperatives and unqualified statements of fact. The instructor's manual to a recent composition textbook states: "There should be an ample number of semantic hedges and qualifiers to indicate that the composition is not dogmatic but a part of the academic scholarly dialogue" (Purves et al. 1995:49). Chinese students, however, do not view themselves as being participants in a 'scholarly dialogue'. They view themselves as conveyors of facts and information, and seekers of knowledge. Thus, they see no problems with such unconditional statements as "Pets are good for people" or "China's one child policy is successful." Rigid arguments are viewed as good arguments; conceding some ground to the other side is not considered effective argumentation, nor is admitting to grey areas. Scott, a Junior English major, states in an expository paper on the role of television in China:

> TV is invented to spread cultural, political and economic information. It should serve the people. But now TV works as a vehicle of earning money. It has been using to [sic] commercial aim. People use it in a wrong way. [Scott]

This use of the hortatorial and the categorical is reinforced by the use of set phrases and metaphors, a reflection of both the Chinese culture generally and the Chinese language specifically. While original and creative arguments are valued within Western society, the Chinese value the use of established classical arguments. These traditional arguments often emerge as set phrases or metaphors. Even the casual speech of Chinese speaking in English can have this 'recorded' flavor where metaphors and what is, in English, considered trite phrasing constitutes the bulk of an expression. Once an idea has been rendered into language, it becomes quickly fossilized in its original form. We can see this in Mao's speech with use of such terms as "petty-bourgeois", "united front", "tailism", and "capitulationism". Words and phrases are carefully chosen in the Chinese culture because their set patterns hold covert meaning. While this is, of course, true of every culture and every language to a certain extent, it is a commonplace of Chinese expression. An extreme example of this "speaking in sayings" is illustrated in Howell's essay on time management:

> Third, to do the things from now on is very important for us. One today is worth two tomorrows. To supervise yourself, not to leave today's work to tomorrow. Each period has its own duty. Those early birds can get the worm. [Howell]

There are, of course, numerous reasons why this paragraph fails as a coherent piece of English text, and the author, in his struggle to produce non-native discourse over-relies on set patterns; but the use of established images and classical sayings is considered effective argumentation in Chinese.

Taken to the extreme, this reliance on established arguments for one's own argumentation blurs the line between 'mine and someone else's.' Because of the collective nature of the Chinese culture and its value on modelling and classical material, plagiarism as we know it in the West is a foreign concept. All information, indeed, all language, is public property to be used for the collective good. In addition, the Chinese people value the authoritative over the personal, even in matters of opinion, and certainly in matters of public stance. Authority, however, is often unspecified and collective, rather than individual and specific. Thus, ideas, sayings, and policies are attributed to 'China' in general or, more commonly, 'the Motherland', or to more specific entities such as 'the Party' or 'the Qing Dynasty'. But specific purveyors of thoughts or even quotes are rare. As a result, Chinese students readily absorb ideas and quotes from Western sources with little thought to their origin.

Conclusion

Given these cultural differences, the success of the English argumentation of Chinese students is mixed. While the students are adept at using prepared arguments, they are less adept at creating original arguments or at combining various arguments into an original stance. In addition, Chinese students argue linearly with little regard for the order of presentation or how one point relates to and affects the other points in the argument. The success of an argument is, for them, the collective weight of all their points, not the logical development of an argumentative stance.

This difference in argumentative style has implications for ESL/EFL advanced learning. If Chinese students, in particular, and non-native speakers, in general, are to gain fluency in English, advanced work needs to involve attention to construction of Western argumentation, including coherent discourse formation and cultural background knowledge. It is not enough to be able to produce fluent English sentences; the ability to function in a language means the ability to take on the cultural values and modes of discourse of the society of a language community.

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VI

LITERATURE AND LANGUAGE STUDIES

LANGUAGE: A VIEW FROM THE RANKS OF SCIENCE FICTION FANDOM

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1. THE GENRE OF SCIENCE FICTION AS A DATA BASE. Science fiction, or more properly, *speculative fiction* since our data base will include works of fantasy as well as traditional science fiction, is the primary futurist literature in the late 20th century. It is frequently strongly didactic in nature, and presents utopias and dystopias based in current social observation and criticism. In spite of the picaresque adventures it portrays, in spite of its humour, imagination, fanciful aliens and mythical beings, bug-eyed monsters and dragons, hard science, pseudo-science and quasi-mythology, much of the best of it has the serious purpose of making us think in a critical and constructive way about our own society and its current preoccupations. In a recent interview, one speculative fiction author, Neal Stephenson (1995), was quite explicit about this:

> For me, writing about the future, or about an alternate universe, isn't so much about making predictions as it is a chance to make interesting points about the present. Looking at things in an alternate world setting gives a fresh point of view on aspects of the modern world -- a view of things we don't notice or think about often because we're so used to them.

By its very nature, didactic speculative fiction is strongly dependent for its impact upon the existence of a consistently shared world-view between author and reader. In order to assure the reader a meaningful connection with a fictional world, and to draw him/her immediately into its society and the action happening there, a writer must be able to rely on sharing with that reader a common code of assumptions about social issues and social behaviours which are recognizable without laborious coaching. For the homiletic purpose to be realized, the familiar must be discernable in the exotic, the normal beneath the bizarre.

As might be expected of a genre in which first contacts with alien beings, the depiction of future or alternative worlds, and the construction of new societies are common matters, language is one of the social behaviours of which authors of speculative fiction have often made productive use. Fabricated languages and novel language behaviours often signal notable characteristics of future societies, reinforce the reader's sense of the passage of time into the future (or sometimes the past), suggest in an encapsulated form the intrinsic character of strange beings or alien races, and mirror our own society for us through future and alien societies. Language as a social behaviour is an important shared construct upon which speculative fiction authors rely to code alternate worlds for extrapolation into our own.

It follows that if authors of speculative fiction are to be successful in using language concepts as a structural tool, they need to estimate rather carefully what their readers may be supposed to know, believe, or believe they know about language, and what familiar constructs they can be expected to recognize in seemingly novel language behaviours. As a consequence, linguists should find, through analysis of the treatment of language in speculative fiction, a window into the metacognitive view of language held by the reading public -- or at least by that portion of it which makes up speculative fiction fandom. And lest we be accused of frivolity in this choice of subject, William H. Hardesty, III, one of the editors of the journal *Science Fiction Studies*, puts such study into the scholarly tradition when he says, '[Science fiction critics and comparatists] have shown us how a kind of literature which we loved, but maybe felt a little ashamed working with, could be dealt with rigorously as a way of studying culture.' (1994)

It is the aim of this paper to examine some works of speculative fiction for insights about the metalinguistic beliefs that appear to be held by this reading public. We will limit this look to apparent beliefs about sound symbolism, construction and improvement of language, and acquiring a second (alien) language, although there are many other areas of interesting data that might be considered. Four works of speculative fiction will supply the bulk of the examples: Tolkien's *The Lord of the Rings* trilogy (1954-55), perhaps the greatest and certainly the most scholarly -- although far from the most didactic -- of all fantasy works; Ursula Le Guin's *Always Coming Home* (1985), a complex utopian/dystopian novel which reflects the author's upbringing as the daughter of two of the century's leading anthropologists, the Kroebers of Berkeley; Larry Niven's *Flatlander* (1995), which is a collection of the Gil the ARM science fiction/mystery short stories set in the early 22nd century (Gil Hamilton is a smart, irreverent cop, and these police procedurals of the near future deal primarily with the major crime issue of the day -- organlegging, or the illegal traffic in human body parts for transplants); and Suzette Haden Elgin's *Native Tongue* (1984), a feminist and strongly didactic dystopian novel of the late 22nd century, written by a professional linguist. These examples will be supplemented by others from the author's favourite recreational reading, and the secondary sources of Meyers 1980 and Clute & Nicholls 1993.

It should be noted in passing that the genre of speculative fiction has long been of more than recreational interest to linguists. Among analysts see Hockett 1955, Barnes 1974, and Meyers 1980 (noted above); among practitioners in addition to Tolkien and Elgin, see Lewis 1938 and Lehmann 1965.

2. SOUND SYMBOLISM. The phenomenon of sound symbolism, the attribution of systematic semantic content to certain phonological variables, has been generally accepted by linguists as a weak but persistent occurrence in language, the most common cross-cultural examples being the association of high front vowels with concepts of 'smallness' or 'nearness' and low vowels with 'largeness' and 'farness', with the explanation offered being based on perception of

the size of the oral cavity during articulation. However, belief in the validity and significance of sound symbolism by non-linguists is pervasive (one common example among many being the frequently offered connection of English /sl-/ with 'slipperyness' as in *slip, slide, slither, slink, slime, slick*, etc.), -- and, of course, its use by poets is unarguable.

The phenomenon apparently has a sufficiently robust reality in the minds of naive speakers to make it available as a tool in speculative fiction, and it plays a surprisingly pervasive role there. Its uses range from the association of the phonology of a whole language with the character of its speakers, through the 'logical' naming of individuals or places with the phonological shape of their names suggesting their natures, to a sort of pseudo-onamatopoeia in which the connotations of invented lexical items are suggested by their phonological shape.

Tolkien, the Oxford philologist whose use and management of language is, among all writers of speculative fiction, the most elaborate, learned, and elegant, is perhaps the source of the concept of a constructed language whose sound system is reflective of the character of its speakers. This may be due in part to his philological expertise, but in more likelihood to his nature as a poet. His biographer, Humphrey Carpenter (1977:133), says of him, 'He could find poetry in the sound of the words themselves....' Sindarin, the primary language of the Elven folk in *Lord of the Rings*, is characterized by frequent liquids and front vowels (e.g. *Galadriel, Elendil, Elrond, Rivendell, isildur, fimbrethil, elentari, silivren*); Tolkien's Elves are magical, noble, and immortal, creatures of song, imagination, and light. In contrast, the Black Speech of Orcs and other hideous and brutal creatures of the Enemy, uses many low back vowels, velar stops, and 'glottalized spirents' (*Sauron, Mordor, Khazad-dum, Orodruin, Minas Morgul, Orcthanc, Grishnakh, Nazgul, uruk, snaga*). A third example, the language of the Ents (a treeish folk), Tolkien himself describes as 'slow, sonorous,...formed of a multiplicity of vowel-shades and distinctions of tone and quantity which even the lore-masters of the Eldar had not attempted to represent in writing.' (*The Lord of the Rings, Vol 3. Return of the King*, p. 409)

Did Tolkien devise these languages as he did because he believed that speakers of English would deduce the appropriate specific characteristics of each race from its phonology, or did he simply allow the markedly different phonologies to take on by association the character of the races he invented? Carpenter suggests throughout the biography that the language came first. One example will suffice; it concerns how Tolkien devised character and place names:

> When working to plan he would form all [the] names with great care, first deciding on the meaning, and then developing its form....Yet often in the heat of writing he would construct a name that sounded appropriate to the character without paying more than cursory attention to its linguistic origins....Later [he would subject these] to a severe philological scrutiny in an attempt to discover how they could have reached their strange and apparently inexplicable form (p. 94).

Although no one has achieved the complexity and depth of Tolkien's use of sound symbolism, many later writers of speculative fiction have made use of this same device, which we might call *phonological characterization*. It is particularly widespread in fantasy writing, but also occurs frequently (sometimes with more of a sense of play) in hard science fiction. An example can be found in one of Larry Niven's future worlds. One of the many sentient races which turn up regularly in his stories is the fierce and warlike Kzin -- feline in origin. The Kzinti language is characterized by few vowels and extensive affrication; Niven refers to an order given by one Kzin to another as sounding like 'an imitation of cats fighting', Kzin names are things like Chmee and Chuft-Captain (Niven 1967). It is of course possible that in addition to reflecting the intrinsic character of a race the sound system of Kzin stems from the configuration of the vocal tract of its native speakers -- but Kzin are able to speak Interworld, despite the fact they find it 'inaptly named [and] difficult for nonhumans to learn and to pronounce' (ibid. p. 195). What is sure is that such phonological characterization has, in addition to its sound symbolic role, an additional benefit in providing the reader with a useful aide memoire for keeping separate and distinct large numbers of alien species.

The tool of sound symbolism is not restricted to use in the development of a whole language. The naming of individuals or groups of characters or places can also reflect readers' acceptance of a nonarbitrary relationship between sound and meaning. In Gayle Greeno's fantasy trilogy *The Ghatti's Tale* (1994), a race of sentient and psychic creatures (ghatti) have personal names that reflect their feline origins: *Khar'pern, Rawn, M'wa*, etc. Another example can be found in Tolkien, where associated with the race of Hobbits -- 'comfort loving...inclined to be fat in the stomach;...have long clever brown fingers, good-natured faces, and laugh deep fruity laughs (especially after dinner, which they have twice a day when they can get it)' -- are personal names like *Bilbo Baggins, Belladona Took, Frodo, Merry Brandybuck*, and *Ham Gamgee (the Gaffer)*. Their names reflect their characters, and could not belong to someone from another of Tolkien's races.

Even in the coinage of single incidental lexical items authors take advantage of readers' apparent acceptance of the reality of sound symbolism. A fine example of this is quoted in Meyers' discussion of words which function purely as vehicles for connotation (p. 8) and comes from Theodore Sturgeon's story 'The Hurkle is a Happy Beast'. Meyers says, 'To speakers of English, the verbs *to fardle, to funt*, and *to fup* sound as if they describe ridiculous acts, and that is all they need to do.'

Tolkien probably provides the richest and most extensive examples of connotative meaning attaching to the phonological level of language, but the phenomenon is widespread throughout the speculative fiction genre, and not all of it is derivative from the master of Middle-earth. Even in the brief examples discussed here, we can see that sound types and classes are accepted by readers as conveying non-denotative information about referents or the personal or species characteristics of speakers, the that this particular sort of sound symbolism has a functional use in speculative fiction. Whether we wish to restrict this convention to speculative fiction, whether or not it is the same phenomenon as the connotative use of sound in poetry, and whether it is a more widespread language behaviour that we have supposed (and if so, what its basis might be) remain to be investigated.

3. CONSTRUCTING, IMPROVING, AND ADDING TO LANGUAGE. A great deal may be discerned about what readers appear to believe about language through investigating the construction of new languages and the introduction of new lexicon in speculative fiction. We will look first at the characteristics and use of two fabricated languages, both constructed by authors who are linguistically sophisticated. In each case, the constructed language plays a significant role in the story and in each case that role, and the reader's understanding of the novel, hinges on the relationship between language and society. The first example is Ursula Le Guin's language, Kesh, from *Always Coming Home*; the second is Laadan, Suzette Haden Elgin's women's language in *Native Tongue*.

Le Guin's *Always Coming Home* is an enormously complex, beautiful, rich, and highly didactic book, and it gives us an interesting example of how language is used as a tool in speculative fiction, and in particular, what metalinguistic insights the author believes her readers will have about language as a reflection of society. In form, *Always Coming Home* is a novel embedded in the ethnographic description of a people whom Le Guin says, 'might be going to have lived a long, long time from now in Northern California.' (p. xi) The people are called the Kesh, and so is their language; *kesh*, we find in the glossary, means 'valley', 'the people who live in the valley', and 'the language of the people'. The Kesh are a peaceful society, living in harmony with their natural world; a society culturally rich and complex, sophisticated in healing, governance, and arts, and possessing a complex social structure which is primarily aimed at the nurturing of its members. This is a utopian novel, in which the lessons to be learned are about individual responsibility, social obligation, and environmental accountability.

Le Guin's description of Kesh is presented as a part of her ethnography of the culture, but what she shows about Kesh is carefully selected, and the real role of the language in the book is to show the world-view of its speakers. Le Guin clearly believes that her readers will understand the reflective link between language and culture, and she describes Kesh to illuminate the structure of her fictional society. The Kesh terms and grammatical structures used in the first-person novel and in the accompanying poems, texts, and songs are those for referents that are not easily translated into English or into our society: *wakwa* 'ceremony, ritual, mystery' (etymol. 'a spring, source of water'); *heyiya-if* - a religious symbol for The Whole; a timeless present tense used in 'telling myths, recounting dreams, speaking of the dead, and in ceremonial recitations' (p. 41). (Le Guin says (p. xi), 'If the reader will bear with some unfamiliar terms they will all be made clear at last.') These uses are supplemented by appendices presenting the Kesh number system, kinship terms, a glossary of words used in the texts, the writing system, a chart of narrative modes, and an essay on written and spoken literature, all illustrative of the different and the significant in Kesh society. In spite of this elaborately developed lexicon, Le Guin gives no systematic description of the phonology or morphosyntax of Kesh; she apparently does not believe that they will illuminate the Kesh view of their world for the reader.

A second example of language construction is found in one of the most didactic of recent speculative fiction books, *Native Tongue*, by the linguist Suzette Haden Elgin (1984). In this case, it is the characters in the novel who themselves construct the language. *Native Tongue* is a feminist argument, set in a not-too-distant future in which (to vastly oversimplify a complex novel) women have lost all rights and social equality and become the closely-controlled chattels of men. The primary theme of the novel is the construction, over many years by a group of women linguists, of a 'native tongue' for women, Laadan. Their work, called the Encoding Project and of course kept secret from men, consists of recognizing new major and minor semantic concepts called *encodings*, unique to their own female existence and world-view, and lexicalizing them. The details of constructing Laadan's phonological and a morphosyntactic system are treated very briefly in this first book in the series, but the task presumably presents no challenge to women whose life-work as part of the linguist caste is the acquisition and translation of great numbers of languages, both human and alien humanoid. (Even well after retirement and in their subjugated state, these women are linguists. Elgin shows us a vignette of an elderly female linguist who is embroidering a sampler. She is working in cross-stitch the motto: 'There is no such thing as a primitive language.')

The construction of Laadan through the Encoding Project, and the characters' explicit comments about it (no reader is allowed to miss the point in this book), exemplify a very strong version of the Whorfian hypothesis. The message of the book is that language establishes reality: 'Perceive this,' says the main character, Nazareth, 'there was only one reason for the Encoding Project, really, other than just the joy of it. The hypothesis was that if we put the project into effect it would *change reality*.' And indeed, this is just what happens. Laadan is finally sufficiently well developed to teach it to the female child linguists, and it becomes a creole used among women linguists, changes their world-view, and begins their emancipation from men; at the end of the book the language constructors are planning to teach Laadan to the non-linguist women in their society. Apparently the draconian view of the power of language that Elgin presents is acceptable to the reading public, at least as an understood device for making a didactic point, for the book has enjoyed considerable popularity (and not just in feminist circles). Elgin has been able to build an acknowledged dystopian society and make her social criticisms using a view of language which resonates with her readers; if it causes linguists, or men, some discomfort, she will not mind.

These two major speculative novels ask their readers to accept two very different views of the relationship between language and society -- one reflective and one causal. Of the two, Le Guin's is the better novel, and the more realistic view of language. But there is sufficient truth to Elgin's claim that new labels can restructure our view of the world -- or at least a fragment of it -- that readers willingly suspend their disbelief to learn the lesson of her story.

Another theme that can be found in the construction of languages in speculative fiction which seems to resonate with readers, is that languages can be improved -- tidied up and made more efficient, precise, and logical, better for communication. Meyers (1980) provides two interesting examples. In the first (Heinlein), he suggests that the notion of perfectibility of language was swallowed even by the author, saying (p. 173ff) that the language Speedtalk, from Heinlein's short story 'Gulf' (1949), was inspired by that author's acceptance, and perhaps misinterpretation, of ideas from Korzybski's *Science and Sanity* (1933). Speedtalk, by combining Ogden and Richards Basic English and a phonetic alphabet extended by suprasegmentals and tone, results in a language in which 'one phonetic symbol was equivalent to an entire word in a 'normal' language; one Speedtalk word was equal to an entire sentence' (Heinlein Part 2, pp. 65-66). Heinlein then argues that 'Speedtalk did not merely speed up communication -- by its structures it made thought more logical; by its economy it made thought processes enormously faster...' (Part 2, p. 69).

The second example given by Meyers (p. 48) is Mechanese. Mechanese, from Pohl and Williamson's 1965 novel *Starchild*, is the language in which humans must communicate with a world-governing computer. Meyers quotes from *Starchild* (p. 86): 'The Machine, counting time in nanoseconds, could not wait for laggard human speech. Accurate in every either-or response, it had no need for redundancy.' Mechanese is claimed to be non-redundant, and 'built upon a principle of economy' (Pohl & Williamson p. 123). A set of segmental phones and a 50-tone pitch system operate as morphemes, and a clause is expressed in a syllable. Clearly both Heinlein's 'Gulf', and Pohl and Williamson's *Starchild* must predate any public awareness or ideas about the psychology of language production or comprehension.

A particularly interesting point about these perfectibility examples is how they hark back to the language improvers of the 16th and 17th centuries. Early rationalists such as Wilkins, Delgarno, Mersenne, Leibnitz, and others -- often under the impetus of creating a new common language for Europe after the demise of Latin in that role -- attempted to create languages that were improved, regularized and simplified, free from the inexactness they saw in natural languages, as effective as mathematics in symbolizing thought. In particular, Wilkins' schema would be a delight to a modern speculative fiction writer. It is based on a rigorous classification of semantic knowledge, is excessively regular, non-redundant, and both in orthography and phonology makes use of minimal symbols (an extremely small signal space, in today's terminology). Wilkins hoped it would control the untidiness of natural language and make communication clear and unambiguous across nations; futurist improvers and their readers clearly continue to hope for the same across galaxies.

Adding to language through lexical coinage provides another window on what authors appear to think that readers know about language processes.

Obviously, fiction about future societies and alternate worlds needs many new terms and changes to familiar or quasi-familiar words, both to label new artifacts and to give the effect of the passage of time. However, an author does not want to slow down a narrative or distance the reader from the action by inserting too many definitions for unfamiliar words. (Out of 30 new lexical items counted in Niven's *Flatlander* stories and Elgin's *Native Tongue*, only four are actually defined in the text (*healthier*, a bedside computer; *puffer*, a lunar motorcycle; *lemmy*, a small spacecraft for suborbital use on the Moon, clearly from 20th century *LEM -- Lunar Exploration Module*; and *droud*, an electric current addict's skull-implanted transformer.)

A better technique of lexicalization is to introduce the new item in a meaningful context and construct it in a way that makes clear its meaning on the basis of word-formation processes familiar to the reader. Both Niven and Elgin make use of compounding, often combined with clipping or analogical formation, to produce new words which they do not define (definitions are included in the following examples in the absence of context): *organlegger*, a illegal dealer in body parts for transplants; a set of words for the descendent of the television - *threedy, tridee, boob cube*, and *holo wall*; *newstaper* - a reporter on the tridee; *wirehead* - a current addict; *autodoc* (or *'doc*) - an individual healing unit which carries out most of the functions of a present-day hospital; *handmeal* - the replacement for the sandwich; *comset* - the successor to the telephone.

One of the most interesting new words (Niven p. 101) is *corpsicle*, a blend of *corpse* and *popsicle* (which itself has to be defined for the story's hero). *Corpsicles* are people frozen before their deaths in the hope that a treatment for whatever ailed them would be found sometime in the future and they could be revived and cured. The word is of particular interest because, in Niven's future world where organs for transplants are in short supply, these individuals look like a prime source of *stuff* (society's word for transplant material), and the ethics of using them in this way provokes a major political debate with both sides insisting on the importance of terminology. *Corpsicle* implies that the subjects are not revivable and can be appropriately used for spare parts; the political opposition insists they should be said to be in *frozen sleep* -- living, clearly viable, just waiting. Spindoctoring is readily recognizable, even in future worlds.

Both authors also have a great deal of fun with new words derived from proper names, although we have to wonder what the life expectancy of these items will be; public figures are not always as memorable as they might hope. Nevertheless, Elgin has given us *pulitzer* 'a prize' (her characters enjoy 'Susannah's pulitzer among spice cakes' p. 261), and a federal employee (male) who is 'a Team Player in the finest *reaganic* tradition' (p. 51). Niven produces *Naderite*, the term for an environmentalist in the hard-rock, money-chasing mining camps of the Asteroid Belt, and -- perhaps the best of all -- a new verb, to *proxmire*. Its meaning is clear from context (p. 278) and history: '"We have *got* to have another Watchbird satellite," Jefferson said. "There used to be three. The replacement keeps getting proxmired in the budget hearings."'

4. TALKING TO ALIENS. The probability is high that if you are the protagonist in a speculative fiction story, you will encounter sentient creatures that are not like you. If the story in which you are involved is to be of much interest, these creatures will probably have a language of some exotic sort, and you will have to communicate with them. This means that the whole domain of interspecies communication in speculative fiction is available to authors as a field in which to play with ideas about language, and to linguists as a database to view what readers may believe about modalities of communication, problems of translation, and the nature of foreign language learning and its ties to cultural understanding.

To be successful in talking to aliens, you first have to determine what modality they are using to communicate. In spite of our own anthropocentric preference for an auditory channel and a verbal encoding system, other species apparently make equally good use of an astonishing array of channels and systems for communication. Both Meyers (1980) and Clute and Nicholls (1993) provide a large number of examples: the expected (at least by humans) channels of sight, touch, smell, taste, plus others which stem from more exotic physiologies; encoding units such as (inter alia) dance, music, colour modulation, scent bursts, and gesture. What is significant for the linguist from all these fanciful and exotic sorts of chat, is that readers apparently understand clearly that the essential basis and underpinning of all language is a coding system. Clute and Nicholls (p. 251) comment on the impetus given to this theme in speculative fiction by the post-World War II interest in information theory saying, 'A number of science fiction communication stories have been in effect code-cracking stories.'

Once you have determined the nature of the system used by an alien species, you are faced with the problems of interspecies translation. Speculative fiction readers have always appeared to be willing to accept the quick-and-dirty shortcut of an immediate translation machine in cases where language was not a central theme of the story, just as they accept a spaceship propulsion system that has no scientific basis if its only purpose is to move characters across intergalactic distances for the next adventure. But immediate translation machines are basically cheats. (It would, however, be interesting to see whether they were used more seriously in the late 1950s and early 1960s -- the heyday of serious work in the machine translation of natural languages, when almost everyone believed that it was only a matter of time and effort before computers took over most routine translation tasks.) Extrasensory perception, and the related skill of thought transference, have in many cases recently replaced machine translation as the conduit of choice for quick communication. While this is a social phenomenon worthy of study in its own right, its primary focus is not language, and so it will not be considered here.

If you are not able to rely on a machine translator or thought transference, you will have to resort to learning the alien language or employing a sentient translator. What does speculative fiction show us that readers seem to know or believe about the processes and difficulties of acquiring an (alien) second language? Three examples will indicate that they both appreciate some specific details of the language acquisition task, and realize that with the successful acquisition of any second language comes the acquisition of a new view of the world.

If we return to Elgin's *Native Tongue*, we find that the author is as didactic about language acquisition as she is about feminism. All members of the linguist caste are required to acquire several languages (human and alien) with native-speaker fluency and to perform passably in a number of others. Infants of the caste are interfaced with humanoid aliens in order to acquire native-speaker fluency in the alien language. Interfacing is not clearly explained, but involves a period of as much physical proximity as differing alien/human environmental requirements allow, during which the infant acquires the world-view perceptions of the alien together with the language to encode them. Only infants can acquire a second language in this way, and it follows that only infants can acquire a language flawlessly; toddlers and young children acquire sufficient skill to assist in complex translation tasks, and adult learners are never fluent although very knowledgable. Given this view of second language development, language teachers will be surprised to hear that naughty young linguist children are punished by being made to go and study their verbs. Elgin's dogmatic view of language acquisition must, however, strike sufficient resonance in her readers that her story is accepted by them. We have only to think about what the response would be if she had reversed the pattern and asserted that only adults could acquire native-speaker competence in a second language. Readers would never have accepted this; they know it doesn't work that way.

The Doona series of novels by Anne McCaffrey and Jody Lynn Nye retail the adventures of a self-styled human 'xenolinguist' who is one of the colonists to the frontier planet Doona. In the second book of the series, *Treaty at Doona*, from which the following example is taken, the xenolinguist makes a first approach to the Gringg -- a race of aliens resembling extremely large bears, who have come calling in their spaceship. Fortunately, the husband of the captain of the Gringg ship is also a skilful linguist and poet, and the first-contact scene (p. 47-ff) is a model of the initial steps of second language acquisition by the direct method and a sketch of how to begin field studies in linguistics. It is doubly interesting in that each species is acquiring the other's language, and the point of view shifts back and forth between the field linguists. Body language displays relaxation, gesture signals welcome, voice quality is cheerful. The linguists begin by pointing and naming themselves and their companions, and then objects in the immediate vicinity. Each begins to see how the other categorizes objects in the concrete world. Each group mis-attributes the genders of the other because of gender-role assumptions from their own cultures. They progress rapidly to writing systems and basic phonetics. The contrast to this correct way to do things is provided by a military xenophobe from Earth, who displays fearful, suspicious, hostile, and counterproductive behaviours that nearly wreck the encounter. In spite of his obstructionism, the two species become fluent in each other's languages by the middle of the book. While the speed with which the descriptive process progresses is questionable, and the development of fluency at this rate unquestionably unlikely, the basic premises about the skills and the state of mind that underlie the successful practical collection of a language must be assumed to be recognizable by readers, and convincing to them.

The last example illustrates a common problem of language learning -- the lack of congruence in obligatory syntactic marking between languages -- and also returns us to the theme of the tie between language and culture, which we have frequently seen that authors expect readers to recognize. It comes from a 1979 Larry Niven short story, 'Grammar Lesson'. The scene is the Draco Bar, and the chirpsithra are sipping electric sparkers and talking with the human bartender. Conversation turns to the bartender's difficulty in learning the possessive pronominal system in Lottl, the language of the chirpsithra, which contrasts several levels of extrinsic and intrinsic possession. To illustrate the paradigm, one of the chirpsithra tells the story of an important episode in her people's history. Their empire had been warring with that of another species, the ilawn, for galactic control of the habitable worlds that surround red dwarf stars. The chirpsithra government offered compromises, the ilawn fought on. At last the chirpsithra vacated some two dozen of their home worlds and dropped asteroids into the oceans; the ilawn seized the worlds, but found them uninhabitable because of the destructive weather patterns set up by the asteroid bombings. The ilawn sued for conference and a compromise was achieved. The chirpsithra speaker then has to explain the point of this story to the bartender: it is, she says, their language that allowed them to prevail over the ilawn. Because their language differentiated between degrees of possession, because *their (Extrinsic)* homes were not the same as, for example, *their (Intrinsic)* hands, they were able to bear to leave *their (Extrinsic)* planets!

5. CONCLUSION. Of course we cannot really prove what readers of speculative fiction know or believe about language just from analysis of texts; we can only point to what they may believe on the basis of what authors use as common coin. And authors cannot know that their assumptions are always correct, that their readers always understand their devices and postulates in the way intended. But on the basis of the characteristic examples presented above, there seems to be evidence that readers hold a common body of beliefs about language, and that these beliefs are sufficiently strong to function as structural elements in the creation of fictional worlds. In some cases, these beliefs are congruent with those of linguists; in others they are not. For example, readers appear to know by what processes new words can be devised and to appreciate the role of age in second language acquisition, but they also cling to the notion that language is an imperfect vehicle, and should be improved. They hold persistently to a belief in the function of sound symbolism -- that connotative meaning can be carried by phonology alone; perhaps linguists should look more carefully at the basis of this idea. What emerges most strongly from the texts, repeated as a theme

across the universe and time, is a profound recognition of the bond between a language and the society, and world view, of its speakers. This is the most powerful belief and the most salient tool of all.

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THE DRAMATIC VALUE OF THE VERB IN CHARACTER CREATION: MACBETH (Shakespeare 1606)

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I. *Introduction*

In this study we shall examine the verb-action-character compatibility in the dramatic development of Macbeth, Shakespeare's hero as tyrant and poet - "the most poetical of Shakespeare's characters" (Evans 1966: 160, Halliday, F.E. 1964). Macbeth is introduced to us as a general of great prowess, amazing courage and heroic achievement. He is lauded as "brave", "valiant", a "worthy Gentleman", "noble", a "peerlesse Kinsman", the King's "worthyest Cousin" whom "we love...highly" (I.ii, I.iii, I.iv, I.vi). Then, he that was "once thought honest...lov'd well" (IV.iii.17), turns "accurs'd" (III.vi.55), a "Tyrant whose sole name blisters our tongues" (IV.iii.16), "an untitled Tyrant, bloody scepter'd.../Fiend of Scotland" (IV.iii.120, 272), a "Monster" (V.viii.31), when, stirred by the Witches' prophecy that he be "King hereafter" (I.iii.55) and incited by Lady Macbeth (I.v, I.vii, II.i), he betrays and murders King Duncan, his kinsman - the only "Spurre" to his "intent" a "Vaulting Ambition" (I.vii.29-31) for the crown, power and happiness. Fearing the dire consequences of his crime, he speeds madly, *as if by force of fate*, uncontrolled by the "pawser Reason" (II.iii.135-136) to further acts of crime and to his doom. Evil is set loose and is further perpetrated - by his order - despite his better feelings, for he is not congenial to the evil he creates, nor does he joy in it, nor gloat, as Iago did over its horrifying results. Though an abhorrent tyrant, he is yet subject to remorse, feelings of guilt, sickness of heart, despair. His powerful imagination - that of a poet - stirs his conscience, a sense of honor, pity and whatever good there is in his nature - "the best in him...deeper and higher than his conscious thoughts and if he had obeyed it, he would have been safe" (Bradley 1955 (1904): 280). He suffers the devastating consequences of Duncan's murder by loss of sleep, rest, peace of mind, sense of security. "Crib'd" by fear (III.iv.31), he is enclosed in an inextricable vicious circle of crime. *It is in his soliloquies, asides, when alone, that he gives vent to his tortured mind, his paralyzing fears, his remorse, his bitterness and despair - manifestations of mind and soul - his inner (authentic/mental) activity - conflicting with his outer (field)* activity - an aspect of *antithesis* dominant in *Macbeth*.

Since character is qualified by action - *outer and inner activity* - how

Table . Macbeth's Verbal Expressions: Lines of Proof 1 and 2 .

Key: Ref=References to Macbeth's *VE* ll. (Act/Scene/Lines); *VE* = Verbal Expressions where Macbeth speaks in reference to himself or where references to himself are inferred; (*A*) = Agentive; (*NA*) = Non-Agentive; *TVE* = Total number of *VE; I*=Imperatives; *E* = Entreaties; *C* = Curses; *O* = Oaths; *Th* = Threats. % = Percentage in relation to TVE in the scene; *SOL.* = soliloquy, aside, when alone; *SOLAVE* = % of *AVE* in the *SOL.*; *SOLNAVE* = % of *NAVE* in the *SOL*; in relation to its *TVE*

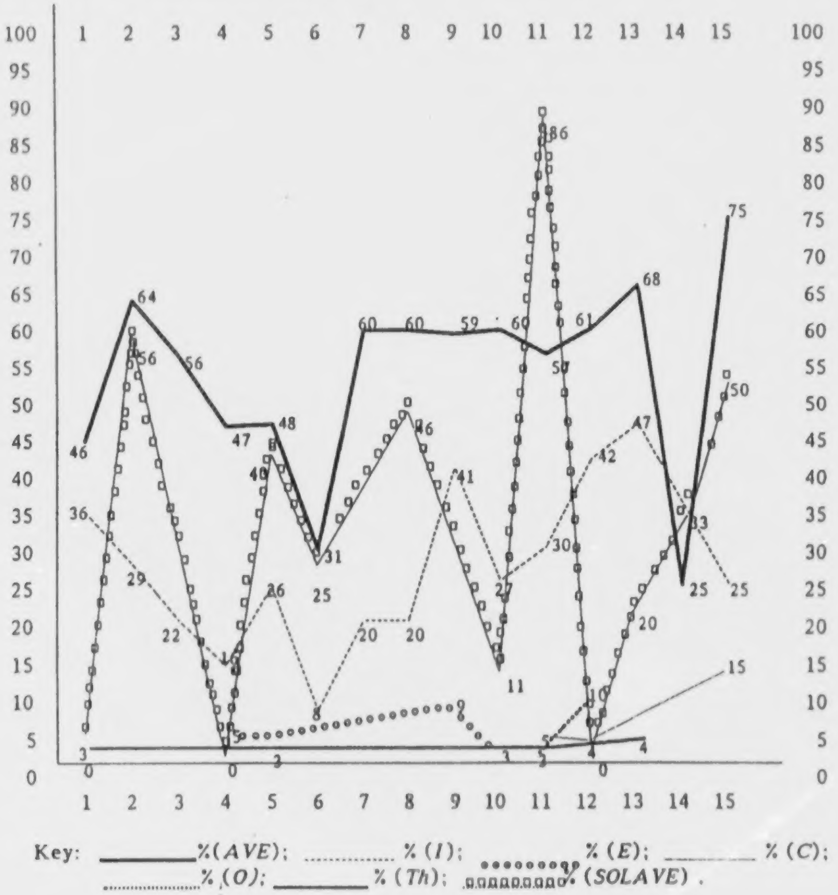
#	Ref.	AVE	NAVE	TVE	%A	% NA	I	%I	E	%E	C	%C	Th	%Th	O	%O	%SOL AVE	%SOL NAVE
1	I.iii. 42-181	15	18	33	46	54	12	36	-	-	-	-	1	3	-	-	0	100
2	I.iv. 29-65	9	5	14	64	36	4	29	-	-	-	-	-	-	-	-	56	44
3	I.v. 3-80	5	4	9	56	44	2	22	-	-	-	-	-	-	-	-	-	-
4	I.vii. 17-95	9	10	19	47	53	3	16	1	5	-	-	-	-	-	-	0	100
5	II.i. 25-77	15	16	31	48	52	8	26	-	-	-	-	1	3	-	-	43	57
6	II.ii. 20-95	8 crisis	18	26	31	69	2	8	-	-	-	-	-	-	-	-	25	75
7	II.iii. 48-165	6	4	10	60	40	2	20	-	-	-	-	-	-	-	-	-	-
8	III.i. 15-169	39	26	65	60	40	13	20	-	-	-	-	-	-	-	-	46	54
9	III.ii. 18-66	13	9	22	59	41	9	41	2	9	-	-	-	-	-	-	-	-
10	III.iv. 4-175	48	31	79	60	40	21	27	2	3	-	-	-	-	-	-	11	89
11	IV.i. 55-184	35	26	61	57	43	18	30	-	-	3	5	2	3	2	3	86	14
12	V.iii. 3-72	32 climax	20	52	61	39	22	42	-	-	2	4	-	-	5	10	0	100
13	V.v. 4-59	17	11	28	68	32	13	47	-	-	-	-	1	4	-	-	20	80
14	V.vii. 3-21	2	6	8	25	75	-	-	-	-	-	-	-	-	-	-	33	67
15	V.viii. 1-41	15	5	20	75	25	5	25	-	-	3	15	-	-	-	-	50	50

Scene Identification: (for Table and Graph)
M=Macbeth; *B*=Banquo; *W*=Witches; *D*=King Duncan; *L*=Lady Macbeth; *F*=Fleance, B's son; *Md*=Macduff.

1) I.iii - *M, B, W; W*'s predictions; *M* starts, doubts, questions. 0% *SOLAVE*.
2) I.iv - *M* greets *D; M* lauded by *D*.
3) I.v - *L* reads *M*'s letter; urges kingship; *M* postpones. No *SOL*.
4) I.vii - *M*'s better self speaking; why not kill *D*. *0%* SOLAVE.
5) II.i - *M* falters before the deed; the dagger vision; fears discovery.
6) II.ii - *Crisis*. The deed is done; *M* fears the dire consequences; feels guilty; the apocalyptic blood image.

7) II.iii – *M* remorseful; pretends innocence; admits killing *D*'s guards. No *SOL*.
8) III.i – *M* as King: *M*'s abysmal fear of *B*; instigates to murder *B* and *F*.
9) III.ii – *M* and *L*. *M*. given to hallucinations, "*horrifying thoughts*"; calls on the destruction of the world so they can have peace of mind. No *SOL*.
10) III.iv – *M* and *L*; *the anatomy of M's fear* – the Banquet; *F*'s escape reported; *B*'s Ghost; confrontation; pretense.
11) IV.i – *M* and *W*; trusts *W*'s prophecies, vows (*SOL*) the destruction of *Md* – highest % of *SOLAVE* in the play (86%).
12) V.iii – *Climax*. *M*'s men deserting; trusts *W*'s prophecies; will fight; *tragic recognition* (*SOL*); begs Doctor to cure *L*. – 0% *SOLAVE*.
13) V.v – "The Queene is dead"; *M*'s last great speech; "*The Wood began to move*"; *M* calls to arm and fight.
14) V.vii. – *M* "*tied...to a stake*;" lowest % *AVE* in the play (25%).
15) V.viii – *Conclusion*. *M* defies suicide; confronts *Md*; disheartened by the truth of *Md*'s birth; overcomes fear and despair; challenges; dies fighting bravely; victorious in spirit – highest % *AVE* in the play (75%).

Graph. Percentage of Macbeth's *Agentive Verbal Expressions* (*AVE*); *Imperatives; Entreaties; Oaths; Threats; Curses* in relation to the total number of his Verbal Expressions (*TVE*) in each scene; *SOLAVE* = % of *AVE* in the *SOL* in relation to its *TVE*.



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does the verb serve in interpreting the dramatic development of Macbeth – his states of mind, his character?

II. *Our Linguistic Methodology*

We shall attempt to examine the stylistic means *in terms of verbal expressions* by which Shakespeare conveys Macbeth's 'activity' or 'passivity' (Nameri 1984). In other words, where is Macbeth's *semantic role* that of an *agentive* ('active') or a *non-agentive* participant *in the action described by the verb in the proposition?* We shall confine Macbeth's participant role to two types: *Agentive* (*A*) and *Non-Agentive* (*NA*). The latter will embody the semantic roles of *Patient* and Experiencer (Lyons 1977:483, Anderson 1971). The only way we can talk about Macbeth as *Agent* or as *Non-Agent* in the linguistic sense is *if he figures as a participant in the semantics of the proposition.* We shall thus consider only those of Macbeth's speeches in which he refers to himself (deleted pronouns or other references to himself must be inferred) as *Agent* of the action described by the verbal expression in the clause, or as *Patient* or *Experiencer*, or *Non-Agent.*

The semantic role of *Agent* will be defined in general terms as that of *the participant who intentionally and voluntarily initiates or causes the action described by a non-stative (action, dynamic) verb in the clause* ("I dare do all that may become a man", I.vii.54). The semantic role of *Patient will be defined as that of the participant who is the recipient of the action described by such a verb* ("They have tied me to a stake", V.vii.3). The semantic role of *Experiencer* will be defined as that of *the subject of a stative (non-action) verb* ("Seyton, I am sick at heart", V.iii.24), *and as that of the entity in the "Dative" case* ("Upon my Head they plac'd a fruitlesse Crowne", III.i.72; "the Blood-bolter'd Banquo smiles upon me", IV.i.145). We shall define a stative verb as a verb denoting a *mental state* (e.g. verbs of perception, cognition, reaction, etc.), or a relation (e.g. verbs denoting existence, possession, negation, equation, etc. (See, esp. Lakoff 1966, Vendler 1966, Joos 1968:116-119, King 1970, Scovel 1971, Miller & Laird 1976, Lyons 1977, McIntosh 1977, Barrett 1978).

Two parallel lines of proof will be drawn to test the extent of the verb-action-character compatibility, thus of Macbeth's semantic role as *Agentive* (*A*) or *Non-Agentive* (*NA*). *One line of proof* will be to look at all of Macbeth's distinct *Agentive speech acts*: imperatives (*I*), entreaties (*E*), curses (*C*), oaths (*O*) and threats (*T*). Each carries determination, power, intention, volition and thus conveys *Agentivity* (see, esp., Jakobson 1960, Austin 1962, Searle 1970, Ohman 1973). *The second line of proof* will be to see where Macbeth is an *Agentive* (*A*) or a *Non-Agentive* (*NA*) participant *when he makes reference to himself or when he is not mentioned but understood (inferred) in the grammatical sense* (Geis and Zwicky 1971). Thus we shall use *Agentive* (*A*) in two different senses.

1) Macbeth's explicit *Agentive* (*A*) speech acts – imperatives, curses, etc., All denote *Agentivity* (*A*).

2) Other verbal expressions (as described above in the second line of proof) in which *the verb in the main clause of the utterance* will determine who is doing the action described by that verb and its complements (modals, etc.). These verbal expressions will include imperatives (*I*) and entreaties (*E*) where Macbeth *is referring to himself* but is not necessarily in the *Agentive* (*A*) role. They will be marked as *Agentive* (*A*) in describing the role of the participant who *utters* this speech act (imperative or entreaty) and as *Non-Agentive* (*NA*) in describing the role of the participant who in the same speech act is not the *Agent*, but the *Patient* or *Experiencer*. In the *NA* category these will be marked (I_2) and (E_2), respectively.

A. Examples of the Two Lines of Proof.

Line of Proof: 1 *I*, *E*, *C*, *O*, *T*, (*A*):

a. "Tell me more". (I.iii.75)(*A*)(*I*)
b. "I charge you". (I.iii.84)(*A*)(*T*)
c. "So prythee goe with me". (III.ii.66)(*A*)(*E*)
d. "From this moment,/The very firstlings of my heart shall be/The firstlings of my hand". (IV.i.174–176)(*A*)(*O*)
e. "Accurs'd be that tongue that tells me so". (V,viii.23)(*A*)(*C*)

Line of Proof 2 (*A*) or (*NA*):

a. "Tell me more". (I.iii.75)(*NA*)(I_2)
b. "So prythee, goe with me". (III.ii.66)(*NA*)(E_2)
c. "I'll fight, till from my bones, my flesh is hackt". (V.iii.39)(*A*)
d. "it hath Cow'd my better part of man". (V.viii.24)(*NA*)

B. Examples of Selected Types of Macbeth's Verbal Expressions:

We must bear in mind that it is hardly characteristic of language to make absolute, clear-cut distinctions. There may be discrepancies, "leakages" (Sapir 1949:38). We must constantly be aware of the verb (+ complements) *within its dramatic context*, "look at the language as a whole" (Jespersen 1924:51; Firth 1962, Austin 1962, Halliday 1978:33, 142).

1) Performatives/Illocutionary Acts (Austin 1962, Searle 1970) (*A*):

a. "I thanke you Gentlemen". (I.iii.145)
b. "O, yet I doe repent me of my furie..." (II.iii.130)
c. "What man dare, I dare". (III.iv.124)
d. "Weapons [I] laugh to scorn, (V.vii.20)

2) "Let" (me, us, etc.) constructions, considered as imperatives (*I*) or entreaties (*E*) (Quirk et al., 1972, Doran 1976:94). (*A*). *Some are also* (*NA*) *of Line of Proof 2* (marked I_2 and E_2. My italics):

a. "Let *me* clutch thee". (II.i.47)(*A*)(*I*),(*NA*)(I_2)
b. "Let every man be master of his time". (III.i.50)(*A*)(*I*)

3) Imperatives where the verb is omitted but understood (*A*):

a. "[Get] down!" (IV.i.134)

b. "thy Story [tell] quickly". (V.v.33)

4) Curses where the verb is omitted but understood (*A*):

a. "[damn'd be him, that first cries] enough". (V.viii.41)

5) Oaths where the verb is omitted but understood (*A*):

a. "The heart I beare
[Shall never sagge with doubt"] (V.iii.11-12)

6) Deletions of pronouns and other references to Macbeth are inferred (*A*): or (*NA*):

a. "So humbly [I] take my leave" (I.iv.58)(*A*)
b. "They [my hands] pluck out mine eyes" (II.ii.75)(*A*)

7) Deletions of pronouns (or nouns) and verbs in reference to Macbeth are inferred by force of the proposition, often governed by a preceding utterance. (*A*) or (*NA*):

a. "And [Our selfe will] play the humble Host:" (III.iv.8)(*A*)
b. "[I am] crib'd", (III.iv.31)(*NA*)

8) Unreal, Conditional or Imaginary Constructions (Karttunen 1971) (*NA*):

a. "Had I but dy'd an houre before this chance,
I had liv'd a blessed time". (II.iii.112-113)
b. "Better be with the dead,/Whom we, to gayne oure
peace, have sent to peace,/Then on the torture
of the Minde to lye/In recklesse extasie". (III.ii.25-28)
c. "I had else been perfect". (III.iv.28)

9) "See' used *Agentively* (*A*) when expressing determination, intention, volition (Gruber 1967, Scovel 1971) (*A*):

a. "Ile see no more". (IV.i.140)

10) Macbeth's references to the universal "we", "us", etc. are not considered.

C. Our Counting Scheme:

1) A verbal expression (verb, verb+complements: modals, subordinate clauses, etc.) *will be given a value (count) of one when it constitutes a complete, independent speech act, idea, in its dramatic context.* This includes "Prithee", "Pray you" followed by an infinitive, conditional constructions, a one-word imperative - each counted separately when repeated in the same proposition:

a. "Prythee, see there". (III.iv.86)(*A*)(*E*) value of one
b. "Out, out, brief candle". (V.v.27)(*A*)(*I*);(*A*)(*I*) value of two

2) "Go" and "Come" and the infinitive that follows will be counted separately:

a. "Come, bring me where they are". (IV.i.184)(*A*)(*I*),(*A*)(*I*),
(*NA*)(I_2) value of three.
b. "Go pricke thy face". (V.iii.19) (*A*)(*I*), (*A*)(*I*) value of two.

III. *Hypothesis*

There will be more *Agentive Verbal Expressions* (*AVE*) - *manifestations of Macbeth's Agentive semantic role* - when he greets King Duncan and declares his duties to him; when after the murder of Duncan - *the crisis* - a devastating fear of the consequences of his crime propels him madly to further acts of crime; when he calls to arm and fight on learning that his men are deserting and marching with the enemy against him; when he overcomes fear and despair and fights courageously at the end.

There will be fewer (*AVE*) - *manifestations of his Non-Agentive semantic role* - when he first questions and doubts the Witches' prophecies; when he falters before the deed; when directly after he has committed it he is horrified, petrified by fear, feels guilty, remorseful; towards the end, when he feels "tied... to a stake", cannot fly but must stay and fight.

After the initial crime (II.ii) - *the crisis* - his *outer* (field) and his *inner* (authentic) activity will, in the main, conflict. *Throughout the play, except for the very end, he will be in inner conflict*, manifest in the jarring relationship between his *inner* - (*AVE*)/(*NAVE*).

IV. Linguistic Results and Literary Analysis - A Compatibility

Macbeth first enters at I.iii with Banquo, victorious after a fiercely fought battle against Duncan's rebels. His first words, "*So foule and faire a day I have not seene*" (I.iii.42) echo the Witches' "*faire is foule, and foule is faire*" (I.i.14), introducing the antithetical theme of conflict and equivocation in this tragedy. He is hailed by the Witches as "*Thane of Cawdor...that shalt be King hereafter*" (I.iii.54-55). Macbeth "*starts*" in "*fear*",.../ "*seems wrapt withall*", *is "rapt"* at their predictions (I.iii.56, 62, 159). They also predicted that Banquo "*shall get Kings, though [he] be none*" (I.iii.72). Macbeth, perplexed, suggests the image of himself dressed in "*borrowed Robes*" (I.iii.120) - an image later applied to him by others (I.iii.263-265, V.ii.24-26). Banquo cautions, advises him to beware of trusting the "*supernatural soliciting*" of the "*Instruments of Darkness*", not to cultivate too ambitious thoughts of kingship (I.iii.135-141).
Macbeth questions his own thoughts, trembles at the "horrid image" of the deed he is already contemplating, fears forfeiting reason for imagination.

Macbeth. ... Why doe I yield to that suggestion,
Whose horrid image doth unfixe my Heire,
And make my seated Heart knock at my Ribbes,
Against the use of Nature? Present Feares
Are lesse than horrible Imaginings:
My Thought, whose Murther yet is but fantasticall,
Shakes so my single state of Man,
That Function is smother'd in surmise,
And nothing is, but what is not. (I.iii.150-158)

> This speech is a microcosm of the Macbeth vision:
> it contains the germ of the whole. (W. Knight, 153)

I.iii shows a low percentage of Macbeth's *Agentive Verbal Expressions* - 46% *AVE*/54% *NAVE* (*of the total number of his verbal expressions* (*VE*) *when referring to himself*) - a manifestation of his predominant *Non-Agentive* semantic role in this scene. His aside (I.iii.143-158, 160-162) with 0% *AVE*/100% *NAVE*, manifests the compatibility between his *outer (field)* and his *inner (authentic/mental)* activity (hereafter *inner/outer*) - a reflection of his questionings, doubts and fears *expressed by stative verbs.*

In I.iv Macbeth meets and is highly praised by the King as his "*worthyest Cousin*" (21), "worthy *Cawdor*" (59), "*full so valiant*" (66), "a *peerlesse Kinsman*" (70). Macbeth declares his duties to his monarth. Duncan pronounces his son Malcolm his successor (48-50). This obstacle Macbeth must *O're leape/For in my way it lyes*" (61-62). He shrinks from the horror of his thoughts, calls on darkness to hide his "*black and deepe desires*" (62-63).

I.iv shows a high percentage of Macbeth's (*AVE*) - 64% including 29% imperatives/36% (*NAVE*). His soliloquy (60-65) marks a compatibility between his outer and his inner activity, with 56% (*AVE*)/44% (*NAVE*).

In I.v Macbeth enters (59) after Lady Macbeth had read his letter relating the Witches' predictions. Fearing that his "*Nature...is too full o'th' milke of human kindnesse./To catch the nearest way*" (I.v.17-18), she would strengthen his spirit.

Lady. High thee hither
That I may powre my Spirits in thine Eare,
And chastise with the valour of my Tongue
All that impedes thee from the Golden Round,
Which Fate and Metaphysicall ayde doth seeme
To have thee crown'd withall. (I.v.26-31)

She urges to practise deceit, hypocrisy when greeting the King to their castle: "*looke like th' innocent flower,/But be the Serpent under 't*" (I.v.74-75) - the flower-snake image of deceit, of evil (Maguin 1986:105)). Macbeth delays, "*We will speake further*" (I.v.80).

I.v. shows 56% *AVE*/44% *NAVE*, the *AVE* manifest mainly in his letter and his response to her urging. No soliloquy.

I.vii opens with Macbeth's long soliloquy (5-32) on the "*horrid deed*" (28) he is to perpetrate, its dire consequences. It is the voice of his conscience, his better self, rationalizing on this immoral, unnatural deed against his king, kinsman and guest. He dwells on Duncan's virtues. The news of his murder would be spread worldwide by cosmic agents and universally condemned. Besides, he has "*no Spurre/To prick the sides of my intent, but only/ Vaulting Ambition*" (28-31). Then, too, Duncan "*hath honour'd me of late*" (38). He is also reluctant to forfeit his "*Golden*" reputation (38-39). Lady Macbeth reprimands him for loss of courage, cowardice. This he cannot bear.

Macb. I dare do all that may become a man,
Who dares no more, is none. (I.vii.54-55)

She pursues her adamant incitement, plans the murder, assures success and freedom from suspicion. He succumbs to her "*undaunted Mettle*" (85), is "*settled*" on committing "*this terrible Feat*" and deluding all by deceit and hypocrisy.

Macb. False Face must hide what the False Heart doth Know. (I.vii.96)

In I.vii Macbeth's semantic role is predominantly *Non-Agentive*, with a low 47% *AVE*/53% *NAVE*. His rationalizing soliloquy shows 0% *AVE*/100% *NAVE*. *Outer* and *inner* activity correspond.

In II.i, on the verge of the deed, Macbeth hesitates, conducts a long inner debate in his dagger hallucination soliloquy (II.i.46-77), questioning his mind, his senses, the reality of his intent - or is it a sickness of the brain?

Macb. Is this a Dagger, which I see before me,
...
I have thee not, and yet I see thee still.
Art thou not fatall Vision, sensible
To feeling, as to sight? or art thou but
A Dagger of the Minde, a false Creation,
Proceeding from the heat-oppressed Braine?
... ...
It is the bloody Businesse, which informes
Thus to mine Eyes. (II.i.46-52, 61-62)

He fears the silence of the night lest it disclose his movements, his deed, calls on earth: "*Heare not my steps, which [way] they may walke for feare/Thy very stones prate of my where-about,*" (70-71), resolves: "*I goe, and it is done*" (76).

II.i, again, shows a low 48% *AVE*/52%*NAVE*, Macbeth, again, predominantly *Non-Agentive*. His soliloquy manifests a corresponding low 43% *AVE*/57% *NAVE*. Doubt, hesitation, questioning dominate both action (*outer* activity) and thought (*inner* activity).

II.ii, *the crisis*. The deed is done. Macbeth is petrified with fear, trembles at the devastating aftermath of his crime - loss of sleep, of peace of mind.

Macb. Me thought I heard a voyce crye Sleep no more.
Macbeth does murther Sleepe, the innocent Sleepe,
....
Balme of hurt Mindes, great Natures Second Course,
Chiefe nourisher in Life's Feast.

...
Still it cry'd, Sleep no more to all the House:
Glamis hath murther'd Sleepe, and therefore Cawdor
Shall sleepe no more: Macbeth shall sleepe no more. (II.ii.46-55)

Terrified, he refuses Lady Macbeth's urging to go and smear the Grooms' faces with Duncan's blood. "*I am afraid to thinke what I have done*" (64). She undertakes the bloody task herself, "*For it must seeme their Guilt*" (71).

Left alone, Macbeth gazes with horror at his blood-stained hands, envisions universal corruption resulting from his irreparable crime, He shudders on hearing a knocking at the gate.

Macb. (soliloquy). Whence is that knocking?
How is't with me, when every noyse appalls me?
What Hands are here? hah: they pluck out mine Eyes.
Will all great Neptunes Ocean wash this blood
Cleane from my Hand? no: this my Hand will rather
The multitudinous Seas incarnardine
Making the Greene one, Red. (II.ii.73-79)

"The blood image here of fear, horror and pain is the most stirring to the imagination, perhaps in the whole of Shakespeare" (Spurgeon 1966:334; see also Evans 1966:159).

Lady Macbeth enters, declares her hands of the same color as his, "*but I shame/To wear a Heart so white*" (81-82), yet consoles: "*A little water cleares us of this deed*" (85), urges, "*be not lost/So poorely in your thoughts*" (90-91). But Macbeth is overcome by remorse and agony:

Macb. To know my deed,
'Twere best not know my selfe.
Wake Duncan with thy knocking.
I would thou could'st. (II.ii.92-95)

Macbeth's predominant *Non-Agentive* semantic role in II.ii - a *reflection of his horror, remorse and pain* is evidenced by a low 31% *AVE*/69% *NAVE*. His soliloquy, when "*lost in thoughts*" corresponds with a low 25% *AVE*/75% *NAVE*.

II.iii evidences a dramatic development in Macbeth's semantic role. He expresses his profound grief at Duncan's death (112-117), pretends innocence, confesses that due to his "*violent Love*" of Duncan (135), he had in his fury, uncontrolled by the "pawser, Reason" (136) killed Duncan's murderers - his guards. Banquo proposes a meeting to "*question this most bloody piece of worke/To know it further. Feares and scruples shake us*" (156-158); suspects "*Treasonous Mallice*" (160-161). Macbeth pretends acquiescence, but Banquo's speech incenses his irrevocable hatred of him, spurring him madly on to his ambitious bloody career.

II.iii marks Macbeth's dominant *Agentive* semantic role with a significant rise of 60% *AVE* from the low 31% *AVE* in II.ii - *the crisis*. No soliloquy.

In III.i Macbeth enters as King. He requests - nay, orders - Banquo's presence at "*a solemne Supper*" that night (III.i, 20,35). His mind is set on murdering Banquo and his son Fleance. In a long soliloquy (59-84) he expresses his fear of Banquo and his issue, his sense of insecurity while Banquo is alive.

Macb. Our fears in Banquo sticke deepe, ...
There is none but he,
Whose being I doe feare: and under him,
My Genius is rebuk'd. (III.i.60-67)

He feels deceived, degraded.

Macb. [Banquo had] chid the Sisters,
When first they put the name of King upon me,
And had them speak to him. Then Prophet-like,
They hayl'd him Father to a Line of Kings.
Upon my Head they plac'd a fruitlesse Crowne,
And put a barren Scepter in my Gripe,
Thence to be wrencht with an unlineal Hand,
No Sonne of mine succeeding. (III.i.68-75)

Rather than "*make ... the Seedes of Banquo Kings*", he will challenge "*Fate*" itself (81-82).

He employs two soldiers to murder Banquo and Fleance, labouring long on their emotions to convince them, by flattery and deceit, that Banquo is *their* "*Enemie*" (138), as well as his.

Macb. So is he mine: and in such bloody distance
That every minute of his being, thrusts
Against my neer'st of Life. (III.i.140-142)

His foul means succeed.

Murth. We are resolv'd, my Lord (167).
Macb. It is concluded (169).

In III.i Macbeth's *outer activity* - 60%(*AVE*), including 20% imperatives/40%(*NAVE*) - manifestation of his predominant *Agentive* semantic role - conflicts with his *inner* activity (manifest in his soliloquy, 59-84), with 46% (*AVE*)/54% (*NAVE*).

In III.ii Lady Macbeth gives vent to her remorse, unhappiness, her recognition of the futility of their deed - premonition of her tragic end.

Lady. Nought's had, all's spent
Where our desire is got without content,
T'is safer to be that which we destroy,
Then by destruction dwell in doubtful joy. (III.ii.8-11)

She discerns Macbeth's afflicted mood, his brooding, in isolation, on "*Fancies*" and *Thoughts which should have dy'd/With them they thinke on*". Despite her own dejection, she urges to be realistic, "*What's done is done*" (17). But Macbeth's torturing fears and unrest after the initial crime are unbearable. He calls on world destruction - "*let the frame of things disjoint,/Both the Worlds suffer*" (21-22) - so they can have peace. "*Better be with the dead.../Then on the torture of the Minde to lye/In restlesse extasie*" (25-28). Lady Macbeth implores cheer,

Lady. Come on:
Gentle my Lord, sleeke o're your rugged Lookes,
Be bright and Joviall among your Guests to Night" (III.ii.34-36)

He readily agrees, advising deceit, hypocrisy, flattery to avoid suspicion: "*make our Faces Vizards to our Hearts,/Disguising what they are*" (42-43). This night's "*deed of dreadful note*" (53) - the murder of Banquo - will "*Cancell and teare to pieces that great Bond,/Which keepes me pale*" (59-60). He will harden himself against fear by further acts of crime:

Macb. Things bad begun, make strong themselves by ill. (III.ii.65)

III.ii evidences Macbeth's dominant *Agentive* semantic role with 59% (*AVE*), due, mainly to a high 41% of imperatives, 9% entreaties/41% (*NAVE*). No soliloquy.

III.iv - *the anatomy of Macbeth's fear*, dramatized at the ironic Banquet where he plays the hypocritical jovial host. When Fleance's escape is reported, he is gripped by a paralyzing fear.

Macb. (aside) Then comes my fit againe:
I had else beene perfect;
Whole as the Marble, sounded as the Rocke,
As broad, and general, as the casing Ayre,
But now I am cabin'd, crib'd, confin'd, bound in
To sawcy doubts and feares
...
There the growne Serpent lies, the worme that's fled
Hath Nature that in time will Venom breed. (III.iv.27-32, 37-38).

He resumes, as he must, his cheerful role as host until the appearance (his hallucination) of Banquo's Ghost (enters, 47; exits, 91; re-enters, 111; exits, 132). Terrified by the sight he challenges:

Macb. Thou canst not say I did it: never shake
Thy goary lockes at me. (III.iv.66-67)

In the presence of Banquo's Ghost, the sight of which "*might appall the Divell*" (76), Macbeth's "*fit*" recurs (71). Detached, then, from reality, "*quite unmann'd in folly*" (92), he excuses his hallucination, when the ghost exits, as "*a strange infirmity*"; "*trembles*" at the "*shape*" of the Ghost (127-128), is "*a man againe*" (132-133) when the Ghost finally exits (132), then questions how "*such things* [can] *be/And overcome us like a Summers Cloud*" (136-137), wonders that *his* cheek is "*blanch'd with feare*" at "*such sights*", while " *you can behold* [them]/*And keepe the naturall Rubie of your cheekes*" (140-142).

Lady Macbeth scorns his hallucination - '*the very painting of your* *feare*" (78) – which she would dispel.

Lady. Why do you make such faces? When all's done
You looke but on a stoole. (III.iv.84–85)

The Ghost exits (132). The hallucination is over. Now, fearing discovery, he suspects Macduff. He will go to the "*weyard Sisters*" to satisfy his burning curiosity. There is no turning back from the evil he is sunk in.

Macb. ... I am in blood
Stept in so farre, that should I wade no more,
Returning were as tedious as go ore: (III.iv.167–168)

He will execute his "*strange*" thoughts "*ere they may be scand*" (170–171), and by "*hard use*" overcome his haunting "*initiate feare*" (174).

III.iv shows a marked discrepancy between Macbeth's *outer activity* (pretense, confrontation), with 60% *AVE*/40%*NAVE*, and his *inner activity* manifest in his aside on the horrifying effects of fear on him (27–32), with a low 11% *AVE*/89% *NAVE*.

In IV.i Macbeth confronts the Witches, ordering them to answer his pressing questions even if their means of doing so bring havoc upon the earth (IV.i.55–65). Hecate had goaded them to delude and confuse Macbeth with their "*Charmes*" (III.v.9) causing him to "*spurne Fate, scorne Death, and beare/His hopes 'bove Wisdom, Grace, and Feare/And you all know, Security/Is Mortals cheefest Enemie*" (III.v.33–36). They concoct three apparitions which both caution and encourage him.

1. *Apparition.* ... Beware Macduff... (IV.i.84)
2. *Apparition.* ... Be bloody, bold and resolute:
Laugh to scorne
The powre of Man; For none of woman borne
Shall harme Macbeth (IV.i.94–97)

Macbeth will, however, "*make assurance: double sure,/And take a Bond of Fate: thou shalt not live,/That I may tell pale-hearted Feare, it lies;/And sleepe in spight of Thunder*" (99–102).

3. *Apparition.* Be Lyon-mettled, proud and take no care;
...
Macbeth shall never vanquish'd be, until
Great Byrnam Wood, to high Dunsinane Hill
Shall come against him. (IV.i.108–112)

Confident, "*That will never be*" (113), he demands further:

Macb. Shall Banquo's issue ever
Reigne in this Kingdome? (IV.i.121–122)

His threatening demand, "*Let me know.*" (125), is answered by "*A show of eight Kings, and Banquo last, with a glasse in his hand*" (132–133).

Macb. (horrified): Thou art too like the Spirit of Banquo: Down:
Thy Crowne do's seare mine Eye-bals...
...

... Ile see no more:
And yet the eight appeares, who beares a glasse,
Which shewes me many more: ...
...
Horrible sight: Now I see 'tis true. (IV.i.134-144)

Word is brought that Macduff "is fled to England" (169). Macbeth vows immediate action.

Macb. (aside). From this moment
The very firstlings of my heart shall be
The firstlings of my hand. And even now
To Crown my thoughts with Acts: be it thought and done:
The Castle of Macduff, I will surprise,
Seize upon Fife; give to th' edge o'th' Sword
His Wife, his Babes, and all unfortunate Soules
That trace him in his Line. No boasting like a Foole,
This deed Ile do, before this purpose coole,
But no more sights. (IV.174-183)

IV.i reflects Macbeth's defiant rather than introspective mood, his unequivocal concluding resolve to act. Here we find 57% *AVE* with 30% imperatives, 3% each of oaths and threats, 5% curses/43% *NAVE*. His *inner* activity, manifest in his aside, shows a high 86% *AVE*/14% *NAVE*. *Outer and inner activity correspond*, though with a wide margin, his aside governed by the strength of determination.

V.iii. *Climax.* Secure in the prophecies of "*The Spirits that know/All mortal Consequences*" (V.iii.6-7, 4-5, 8-9), Macbeth, undaunted, defies the report that his men are deserting to join the English forces, orders, vows:

Macb. Bring me no more reports, let them flye all:
...
The minde I sway by, and the heart I beare,
Shall never sagge with doubt, nor shake with feare (V.iii.3, 11-12)

He loses heart, however, when the report follows that "*ten thousand soldiers*" of the "*English Force*" are approaching.

Macb. (alone) ... I am sick at hart,
... this push
Will cheere me ever, or dis-seate me now. (V.iii.24-26)

He suddenly recognizes the tragic consequences of his ambitious pursuit of kingship and power which has robbed him of the human values that really matter in life, yielding animosity, deceit, hypocrisy.

Macb. (alone) I have liv'd long enough: my way of life
Is falne into the Seare, the yellow Leafe.
And that which should accompany Old-Age,
As Honor, Love, Obedience, Troopes of Friends,
I must not looke to have, but in their steed,

Curses, not lowd but deepe, Mouth honor, breath
Which the poore heart would faine deny, and dare not.
(V.iii.27-33)

He bestirs himself, in full command, when the report is confirmed (37).

Macb. Ile fight, till from my bones, my flesh is hackt,
Give me my Armor.
...
Send out more Horses, skirre the Country round,
Hang those that talke of Feare. Give me mine Armor. (V.iii.39-44)

His thoughts turn to his wife, "*troubled with thick-comming Fancies/That keepe her from her rest*" (47-48). He begs the Doctor to cure her, restore her to health and, above all, to peace of mind - that which he himself so passionately longs for (49-55).

Returning to the menace of "*these English*" (67), he repeats his earlier defiant vow (3-5, 11-12):

Macb. I will not be afraid of Death and Bane,
Till Birnane Forrest come to Dunsinane. (V.iii.71-72)

Macbeth's *outer activity* in V.iii - 61% *AVE*, including 42% imperatives, 4% curses, 10% oaths/39% *NAVE*, conflicts strongly with his *inner activity*, manifest in his soliloquy (27-33, above), with *0%*AVE/*100%*NAVE, *testifying yet again, that the evil he commits is not congenial to him* (see Bradley, 289; Ferguson 1957: 121; cf. his inner conflict before he murders Duncan (I.vii), his remorse, sense of guilt, after the murder (II.ii, II.iii, III.ii)). In V.ii we heard some speak of him with a measure of empathy: "*Some say he's mad: Others, that lesser hate him/Do call it valiant Fury*" (V.ii.18-19); *he is weighed down by the horror of his bloody "secret Murthers"* (V.ii.22-23); *he is tortured by an inner conflict.*

Ment. *Who then shall blame*
His pester'd Senses to recoyle, and start,
When all that is within him, do's condemme
It selfe, for being there. (V.ii.29-32)

V.v - Macbeth calls to prepare for war (4) since "the Cry is still they come" (V.v.5). Confident of "*our Castle's strength*" (5), he scorns a "*Siedge*" (6). Alone, he soliloquizes on his past fears.

Macb. I have supt full with horrors,
Direnesse familiar to my slaughterous thoughts
Cannot once start me. (V.v.17-19)

His musing is interrupted by the shattering news of the Queen's death (20).

Macb. She should have dy'de hereafter,
There would have beene a time for such a word. (V.v.21-22)

In grief, bitterness and despair, he utters his last great speech, its theme the meaninglessness of time - a void of repetitious "*tomorrows*" - , the worthlessness of human existence, of man's strife for power, men but

"*Fooles*' groping their way to a "*dusty death,... Life but a walking Shadow... a Tale/Told by an Ideot, full of sound and fury/Signifying nothing*" (21–32) – a summary of

> the central paradox of evil, that however terrible its
> power, it can only lead to "*nothing*". (Knights 1964:103)

It is Macbeth's statement on the *universality* of human existence, *himself now a part of it* – "all *our* yesterdays" (26, my italics). There is no reference here to himself as there was in his climactic soliloquy in V.iii (see p. 14, above). In both these profound speeches (V.iii.24–33, V.v.21–32) we hear

> the despair of a man who had knowingly made mortal
> war on his own self. (Bradley, 285)

The next blow comes with the report that "*Byrnane.../Wood began to move...a moving Grove*" (39–44). Macbeth's confidence in the Witches' prophecies slackens.

Macb. I... begin
To doubt th' Equivocation of the Fiend,
That lies like truth. (V.v.49–51)

If the report is true, "*There is nor flying hence, nor tarrying here*" (55). A weariness envelops him.

Macb. I 'ginne to be a-weary of the Sun,
And wish th' estate o' th' world were now undon, (V.v.56–57)

But fight he must, defiant of both man and nature,

Macb. Arme, Arme, and out,
...
Ring the Alarum Bell, blow Winde, come, wracke,
At least wee'l dye with Harnesse on our backe. (V.v.53,58–59)

Macbeth's dominant *Agentive* semantic role in V.v, function of his adamant stand against calamity despite grief and despair, is manifest in a high 68% *AVE*, with a high 47% imperatives – the highest in the play –, and 4% threats/32%*NAVE*. This again, *conflicts markedly with his inner activity* manifest in his soliloquy on his past fears (13–19) with 20% *AVE*/80% *NAVE*, ascertaining, thus, his victory over fear *at this point*.

V.vi marks the final movement in the reversal of the tragedy. Malcolm, Seyward and Macduff are heading their Army, "*with Boughes*", on their march to Dunsinane.

Mal. Now neere enough:
Your leavy Skreenes throw downe,
And show like those you are. (V.vi.5–7)

– a palpable image of the end of deceit.

V.vii – the battlefield. Macbeth enters, alone, helpless, but not succumbing.

Macb. (alone) They have tied me to a stake, I cannot flye, But Bear-like I must fight the course. (V.vii.3-4)

Confronted and challenged by Young Seyward, they fight. Young Seyward is killed. Macbeth feels invincible.

Macb. (alone) But Swords I smile at, Weapons laugh to scorne,
Brandish'd by man that's of a Woman borne. (V.vii.20-21)

V.vii shows a sharp change in Macbeth's semantic role, manifest in his *outer activity*, with 25% *AVE - the lowest in the play/75%NAVE. There are no* VE *of line of Proof 1 - imperatives, entreatees oaths, curses, threats.* The verbs are mainly stative - of the senses, negation, existence: "*cannot*", "*am*", "*is*", "*smile at*", "*feare*". He is the *Patient* and *Experiencer.* His two soliloquies in V.vii also show a low - 33% *AVE/67%NAVE. Outer and inner activity here correspond*, his semantic role clearly *Non-Agentive.*

V.viii. Macbeth enters, alone. Despite his desperate situation, he defies suicide - "play the Roman Foole" (V.viii.2-3). Macduff enters, challenges him. Macbeth, with an awakened sense of remorse, would avoid the combat.

Macb. But get thee back, my soule is too much charg'd
With blood of thine already. (V.viii.8-9)

Macduff's answer is "*in my Sword*" (11). They fight. Macbeth has the upper hand, boasts that he bears "*a charmed Life, which must not yield/To one of woman borne*" (17-18). When Macduff discloses that he "*was from his Mother's womb/Untimely ript*" (20-21), Macbeth loses heart, recognizes, at last, the totality of the equivocal nature of "*The Instruments of Darkness*" (I.iii.136-141), realizes how blindly he had trusted "*these Juggling Fiends.../That palter with us in a double sense,/That keepe the word of promise to our eare,/And break it to our hope*" (V.viii.25-28). "*Cow'd*" (24) in spirit, he refuses combat: "*Ile not fight with thee*" (28), but when called "*Coward*" and threatened with life-long public disgrace if he yields (30-33), he would re-assert his pride and valor.

Macb. I will not yeeld
To kisse the ground before young Malcolmes feet,
And to be baited with the Rabbles curse. (V.viii.34-36)

Despite the ominous odds against him (37-38), he is reconciled. He "*will try the last*" (39). Rising above fear and despair, he challenges boldly: "*Lay on Macduffe,/And damn'd be him, that first cries hold, enough*" (40-41), and dies fighting in an admirable display of courage.

In V.viii Macbeth's dramatic development culminates in a heroic moral victory. His semantic role is predominantly *Agentive*, with a sharp rise to 75% *AVE* - the highest in the play - including 25% imperatives, 15% curses/25% *NAVE* - *a dramatic reversal* from his position in V.vii, with 25% *AVE/75%NAVE.* In V.viii Macbeth arrives at his ultimate recognition of the truth of his tragedy (see, also, V.iii, above), demonstrates determination for self-assertion and inimitable courage in overcoming fear and despair - that which had propelled him madly, against his conscience, uncontrolled by reason, without will or joy, in his murderous ambitious career. *In V.viii, alone, there is no conflict within him, his inner activity manifesting a balanced* 50%*AVE*/50%*NAVE*. There is, at last, a reconciliation.

Conclusion

Our linguistic methodology applied as an aid in the interpretation of character (pp. 2-3, above) states that Macbeth's semantic role - *Agentive* or *Non-Agentive* - is a function of his activity - *his behavior*-marked by *the total number of his verbal expressions* (*TVE*) when speaking in reference to himself or where references to himself are inferred. *In addition*, as cardinal in comprehending the complexity of Macbeth's character *in its totality - what transposes within him* - we isolated his speeches when he is alone, in his asides and soliloquies (hereafter, *SOL*) where his *inner* (authentic/mental) *activity* is a function of the relationship between the percentage of his (*AVE*)/(*NAVE*) in the *SOL* studied. Discrepancy/conflict between his outer/inner activity sets in after the murder of Duncan - *the crisis* (II.ii). It is of major significance to note that *throughout the play, except for the last scene* (V.viii) his *inner activity* shows a conflicting (*AVE*)/(*NAVE*) relationship. In most of the scenes it is acute (see Table, below).

The results obtained in this study correlate with my hypotheses (p. 5, above) evidencing the compatibility between Macbeth's *Agentive* (*A*)/*Non-Agentive* (*NA*) verbal expressions (*VE*) and his corresponding semantic role (*A* or *NA*). We find a high % of Macbeth's (*AVE*) when he greets King Duncan (I.iv-64%*AVE*/36%*NAVE*). His *inner* activity shows a corresponding relationship - 56% *AVE*/44% *NAVE*); his letter to Lady Macbeth relating the witches' prophecy that he be King (I.v - 56% *AVE*/44%*NAVE*. No. *SOL*.); he pretends innocence, admits he killed Duncan's guards (II.iii - 60% *AVE*/40%*NAVE*, No *SOL*.); instigates to murder Banquo (III.i-60%*AVE*/ 40%*NAVE* - *conflicts* with his *inner* activity (fear of Banquo) - 46% *AVE*/54% *NAVE*); tortured by remorse and fear, he calls on darkness to hide the murder of Banquo and his son, calls on the destruction of the world so he can have peace of mind (III.ii - 59% *AVE*/41%*NAVE*. No *SOL*.); the Banquet - pretends joviality, confronts Banquo's Ghost (III.iv - 60%*AVE*/ 40%NAVE - *in marked conflict with his inner activity* (on his fear) - 11% *AVE*/89% *NAVE*): with the Witches again, seeks assurance, defiant; the three Apparitions, the Procession of Kings; vows (in soliloquy) the destruction of Macduff (IV.i, outer - 57%*AVE*/43%*NAVE* - *in relative agreement with his inner activity* - 86%*AVE*/14%*NAVE*); his men are deserting to join the enemy, M. still trusts the Witches' prophecies, will fight; *tragic recognition* (V.iii.-61%*AVE*/39% *NAVE* - in *strict conflict with his inner activity* (soliloquy - recognition of the wages of his ambitious career)- 0%*AVE*/100%*NAVE*); calls to arm and fight (V.v - 68%*AVE*/32%*NAVE* - *in conflict with his inner activity* (on his former fears) - 20% *AVE*/80% *NAVE*; overcomes fear and despair, challenges Macduff, dies fighting in a heroic display of courage (V.viii-75% *AVE* - the highest in the play -/25% *NAVE* - *no conflict with his balanced inner activity* - 50% *AVE*/50%*NAVE*).

In the five scenes where his semantic role is predoiminantly *Non-Agentive*, (see Table, below), we find a *corresponding relationship between his outer and inner activity.* A low % of Macbeth's *AVE* is manifest when he first meets the Witches, doubts, questions their prophecies, his own thoughts (I.iii - *outer* 46%*AVE*/54%*NAVE* - *inner* 0%*AVE*/100%*NAVE*); speaks of Duncan's virtues, why not kill him - his better self speaking - (I.vii - *outer* 47% *AVE*/53% *NAVE* - *inner* 0% *AVE*/ 100%*NAVE*); doubts, falters before the act; the dagger vision (II.i - *outer* 48%*AVE*/52%*NAVE* - *inner* 43% *AVE*/57%*NAVE*); *the crisis* - the deed is done, he is horrified, petrified with fear, remorseful; the powerful blood image (II.ii - *outer* 31% *AVE*/69%*NAVE* - *inner* 25%*AVE*/75%*NAVE*); he feels "tied to a stake" (V.vii - *outer* 25%*AVE* - the lowest in the play - /75% *NAVE* - *inner* 33%*AVE*/67%*NAVE*).

To underscore the significance of studying the outer/inner activity relationship, we further isolated two *unique* scenes (IV.i and V.viii), cardinal in illuminating Macbeth's dramatic development. *In both scenes Macduff is Macbeth's focal concern.* In IV.i he resolves to overcome his "*pale-hearted Feare*" of Macduff (101) by destroying him and "*all that trace him in his Line*" (181-182) so that he may "*sleep in spight of Thunder*" (102). He vows to act - "*be it thought and done*" 177). Here, *his inner activity* (in soliloquy 172-183) *is the most predominantly Agentive in the play* - 86%*AVE*/14%*NAVE*). In V.viii, "*cow'd*" in spirit by Macduff, then threatened by him, he re-asserts himself, *overcomes his despair and his haunting fear of Macduff*, challenges him boldly, loses his life in combat with him, but gains heroic victory in spirit. Here, *his outer activity is the most predominantly Agentive in the play* - 75%*AVE*/25%*NAVE*, with a *balanced* 50%*AVE*/50%*NAVE inner activity. Thought* (IV.i) and *action* (V.viii) finally agree in tragic reconciliation.

The above study of the dramatic value of the verb in the creation of character qualified both by his outer (field) and his inner (authentic/mental) verbal behavior testifies to the invaluable contribution of the art of linguistics as an aid in the interpretation of character.

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VII

GENERAL TOPICS

PITCH AND VOWEL REDUCTION/CENTRALIZATION

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Vowel Reduction/Centralization

In English, the weakening of an accented syllable often "reduces" the vowel to schwa [ə] (compare Edwards and Shriberg 1983:104). For example, in *able* [e:bl̩] the vowel is produced with the tongue forward; but when this word becomes the unaccented suffix in *available* [əve:ləbl̩], the vowel is reduced.

This process of vowel reduction is also called vowel centralization because of the position of the tongue in articulating the sounds. While the tongue is in a high or low, front or back position for the accented vowel, it tends to move toward the mid central – the "neutral" middle – for the unaccented reduced vowel.

The English accent that motivates this reduction/centralization process is actually composed of two phonetic features: stress and pitch. Stress is the strength (strong versus weak) with which a sound is articulated and corresponds acoustically to amplitude. Pitch is the musical tone (high versus low) with which a sound is articulated and corresponds to frequency. Since the two features always cooccur in the English word (strong is always high, weak is always low)when stress is not a factor (when the word is pronounced as intonationally neutral), stress is considered the principal accent with pitch ancillary – predictable from stress (Lyons 1968:103).

Thus, vowel reduction/centralization in a word is interpreted as the result of a change from the vowel's occurrence in a weak syllable – "vowel reductions found in unstressed syllables are seen as weakening processes" (Hyman 1975:170). This interpretation stands to reason: The more strongly articulated sound is pronounced in the more extreme position, while the more weakly articulated sound is "relaxed," tending to be pronounced more in the position the tongue occupies at rest. This process occurs to various degrees in different languages, but the cause of the reduction/centralization is always seen as stress reduction (compare Flege and Bohn 1989, also Charette 1991).

This view has certainly been taken almost as axiomatic for English. In their classic *Sound Pattern of English*, Chomsky and Halle (1968:110-26) devote over 25 pages to the examination of vowel reduction rules that ultimately derive from the assumption that the vowel is reduced to [ə] as a result of maintaining the features [-stress, -tense]. While the framework of

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phonology has changed considerably since then, the basic assumption has remained very much intact.

The Separation of Pitch from Stress

So long as stress and pitch always coincide, there is no reason to question the "common-sense" interpretation of the reduced/centralized vowel resulting from the relaxation of the tongue in a weak syllable. Indeed, stress and pitch always do appear to correspond when both occur in a language – except in Welsh.

Due to a series of historical developments, the accent pattern of stress in the Welsh language does not coincide with that of pitch. While the primary stress in Welsh occurs on the penult (the next-to-last syllable), the primary pitch occurs on the ultima (the last syllable). This unique situation allows the analyst to determine precisely which processes involve stress and which involve pitch. (Compare Jones 1949, Watkins 1961, Griffen 1979, Williams 1989.)

For example, the insertion of aspiration can occur when a syllable takes on the stress accent. Thus, when the feminine ending is added to the word *brenin* 'king', the word is realized as *brenhines* 'queen', with the aspirate [h] in the stressed penult. Such aspiration is quite in keeping with the more forceful articulation of the stress accented syllable.

On the other hand, vowel reduction/centralization operates in a different and very unexpected way, as in figure 1 (adapted from Morris Jones 1913:116). The syllable in which vowel reduction/centralization is taking place – the penult – maintains the heavy stress accent.

In final syllables and monosyllables	In other syllables	Examples
ai [ai]	*ei* [əi]	*caib, ceibio* 'mattock', 'to dig or pick'
au [aï]	*eu* [əï]	*haul, heulog* 'summer', 'summery'
w [u]	*y* [ə]	*trwm, trymach* 'heavy', 'heaviest'
y [ï]	*y* [ə]	*byr, byrder* 'short', 'shortness'

Figure 1: Welsh Vowel Reduction/Centralization

When stress and pitch are separated so that the phonological processes involving accent can be attributed to one or to the other, vowel reduction/centralization is seen to be caused not by the weakening of stress in the syllable, but by the loss of high pitch. Evidently, there is some property of pitch that governs vowel reduction/centralization quite in contradiction to the "common-sense" workings of syllable stress.

If in a language that separates stress from pitch, a process is seen to be governed by pitch rather than by stress, then it must be concluded that in a language that realizes stress and pitch simultaneously, the process in question is governed not by stress, but by pitch. According to the evidence, then, English vowel reduction/centralization results from a reduction in the pitch accent coincidental with the stress accent. Accordingly, pitch must be considered at least in this instance to be the primary accent in English.

Vowel Deletion and Pitch

It is another commonly held assumption that the same weakening process that reduces or centralizes an unstressed vowel may ultimately lead to the vowel's deletion: "In English, unstressed vowels tend to become lax and ultimately schwa. . . In addition, in the history of English and French, final unstressed vowels weakened to schwa and then dropped" (Hyman 1975: 170). Once again, however, the situation in Welsh with its separate stress and pitch accent systems reveals a much more complicated situation.

The phonologically pertinent levels of stress accent in Welsh can be illustrated by the examples in figure 2. While the phonetic values vary from dialect to dialect (with some dialects realizing an anteantepenult stronger than the ultima and others realizing one that is weaker), the phonologically pertinent values hold for all dialects (see Griffen 1979). Of greatest importance to this investigation is the fact that the antepenult is always the weakest syllable, the penult is the strongest, and the ultima is in between (in some dialects very close to the level of the penult).

canwyllerni	/kan uï ɬer ni/	/2 3 1 2/	'candlesticks'
caniadau	/kan ja dɛ/	/3 1 2/	'songs'
caniad	/kan jad/	/1 2/	'song'
can	/kan/	/1/	'white'

Table 2: Stress Levels in the Welsh Word

Historically, there have been two competing deletion processes. The one that would be the more familiar to English-speakers is the deletion of the weakly stressed antepenult with a simple vowel. For example, *tragywyddol* [tra gə wï δɔl] 'eternal' can be realized as [tra gwï δɔl] with the loss of the unstressed vowel from the antepenult (compare Morris Jones 1913:54).

There is also another deletion process, however, affecting the initial syllable of a disyllabic word. As Jones notes, "in some cases in normal colloquial use the penultimate is actually lost; this seems to occur in a few disyllables which are weakly stressed as a whole in the sentence-context and in which the vowel of the final syllable is of greater natural sonority than that of the initial syllable: *'to* for *eto* 'yet', *'ma*, *'na*, *'cw* (*'co*) for *yma*, *yna*, *acw* 'here', 'there', 'yonder', *'na* for *dyna* 'there is', 'voilà'. No doubt the frequently higher pitch of the final syllable plays a part in this process" (1949:63).

There are various justifications for this second deletion process. One could say that historically a clitic is involved; but a clitic is by definition part of the phonological word. One could also say that there is a relative sonority differential, a situation suggested by Jones himself but not defined. Whatever one might say, however, this pattern of syllable deletion maintains the syllable with the pitch accent while deleting the syllable with the stress accent.

Conclusion

The complicated situation revealed in the Welsh data can be codified by the following rules:

(1) Vowel reduction/centralization results from the loss of the high pitch accent.
(2) Vowel deletion results from the following conditions:
  (a) Lack of high pitch accent.
  (b) The weakest available stress accent, given the restriction in condition (a).

What the Welsh data reveal is a contradiction of the firm "common-sense" assumption of the way in which both vowel reduction/centralization and vowel deletion work. Once pitch accent is separated from stress accent, it is evident that stress accent has only a secondary effect on deletion and no effect at all on reduction/centralization.

Of course, these findings raise questions on the relationship between phonology and phonetics. How does the pitch produced in the larynx affect the apparatus of the tongue body to bring about a centralization? Why is frequency more prominent than amplitude in determining the vowel that will in effect lose all amplitude? These and other questions are best left to a more thorough examination currently in progress.

For now, the phonological ramifications are quite far-reaching enough. Both reduction/centralization and deletion are basic and prominent vocalic processes in many (if not all) languages. The evidence from a language that separates the variables of pitch and stress indicates that these processes are pitch-motivated, while other processes (such as aspirate insertion) are stress-motivated.

For traditional approaches to phonology, these findings can be incorporated simply by recognizing the feature of pitch as separate from the feature of stress and attributing rules and/or relationships accordingly. This will entail a very close examination of Welsh and of any other languages that maintain separate pitch and stress accent systems in order to separate the variables and determine the precise motivations. For traditional phonology, the most disturbing element of the discovery that pitch plays the dominant role in these processes is that it reminds linguists that there are doubtless many more false assumptions based upon hidden variables.

In the more modern approaches to phonology such as autosegmental and metrical theories (see Goldsmith 1990), the ramifications of these findings are more fundamentally disturbing. One can simply remedy the immediate problem by adding another autosegmental tier. But while in Welsh the maintenance of two separate tiers should lead to a better understanding of the roles of pitch and stress, in English the consistent cooccurrence of these tiers would raise a question of interdependence: How is the autosegmental phonologist to define the tiers if it is unknown what properties and processes may derive not from each individually, but from their interaction?

For metrical theory the problems are far worse. Accentual strength and weakness for a vowel now must be accounted for both from the standpoint of stress and from that of pitch, which incidentally is in some ways closely linked with intonation. As the rules noted above show, the strength or weakness of a syllable or vowel is far more complicated than heretofore supposed. The practice of designating some syllables simply as strong and others as weak no longer works, for the phonologist must determine the manner in which a syllable may be strong or weak.

One aspect of these findings must be reiterated and must not be ignored: If in a language that separates pitch accent from stress accent it can be shown that a process is motivated by pitch rather than by stress, then pitch is the only justifiable variable for the motivation of the process in languages in which pitch and stress coincide. Thus, unless the situation in Welsh can be contradicted by other languages with separate pitch and stress accent systems, the motivations revealed by the Welsh data must be considered universal and must be incorporated into phonological description and theory.

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THE EXTENSION OF THE LATIN ALPHABET TO REPRESENT THE SOUNDS OF OTHER LANGUAGES

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0.1. The Latin alphabet, like the Roman calendar, is the only one widely used on every continent. The pre-eminence of both is a heritage from imperial Rome, though in somewhat different ways. The calendar, as reformed by the dictator Julius Caesar, gained wider currency than the Latin language itself; for especially in the eastern provinces of the empire Greek remained the prevalent language for several centuries of the Christian era. A pattern was set then that has continued down to the present: The calendar does not need, nor does it admit, any adjustment to the local or regional situation. Caesar, upon the advice of Greek astronomers, changed the traditional Roman calendar so as to make it essentially solar — as the Egyptian calendar had always been — but with a simple rule for leap years so that the vernal equinox should remain on the twenty-first of March, or close to it.

Just one secondary refinement of the Julian calendar has been necessary: Pope Gregory's modification dropped ten days out of the year 1582 to bring the vernal equinox back to March 21 thereafter, and he decreed that the century years henceforth should not be leap years unless divisible by 400 (i.e. 1600, 2000, 2400, etc.). The Catholic countries adopted his reform promptly. The Protestants were much slower; but by 1752 the wars of religion were far enough in the past for Great Britain to accept the Gregorian calendar on its merits. Russia, however, kept the Julian until the great revolution of 1917, which (among other things) disestablished the Orthodox Church. Some of the Orthodox in America, even now, celebrate Christmas on the twenty-fifth of December Old Style — thirteen days later than other Christians.

It was through the Christian religion that the Roman calendar survived and spread while the Roman empire passed away. Likewise it was through Christianity, rather than any physical power of Rome, that the Latin alphabet spread over most of Europe; and eventually the trading and colonizing nations of Europe brought it to the rest of the world.

0.2. The earliest expansion, to be sure, occurred in Italy during the pre-Christian era, when the Oscans to the south of Latium and the Umbrians to the east went over to the Latin alphabet for the writing of their languages, in preference to their local scripts. They were already subordinate allies of Rome, with small Latin colonies in parts of their territory. Latin was the superstrate language in clear political terms; and within generations those other Italic languages gave way completely to their one dominant Indo-European relative, which had started out in a modest area along the Tiber. So Oscan and Umbrian, written in Latin letters, were of no lasting consequence.

0.3. It took quite different circumstances to set the Latin alphabet on a course to sweep across so much of Europe and the world. A precondition, however paradoxical, was the decay of the Latin language on the vernacular level, while it was kept up in schools and churches — especially at episcopal and monastic centers. The gap between the unwritten home language of the pupils and their school Latin in Italy, Spain, Gaul, and North Africa made it all the more necessary to concentrate in school upon the details of Latin. So it became less and less practical to continue also the teaching of Greek, which had been — for entirely cultural reasons — the superstrate language of educated Romans. As a result, Latin alone was destined to predominate over western Christendom, much more strongly indeed than Greek over eastern Christendom.

0.4. The contrast shows up between the nations that were proselytized by Latin missionaries and those which learned the new religion from Greeks. None of the eastern nations simply took over the Greek alphabet of twenty-four letters. While it served in fact as the base for the writing of Coptic, Gothic, and — later on — Church Slavonic, in each case the need for supplementation was recognised in order to express the sounds which had no Greek counterpart. For Coptic these were obtained from the Demotic Egyptian script; for Gothic either from Latin or from runic characters; for Slavonic, which had no native background of literacy to draw upon, two characters were taken from Hebrew: ш [š] from ש, and ц [ts] from צ.

In England, Ireland, and Germany — the field of Latin missionaries — that sort of thing was done much less. Although for Old English the runic letter *þ* was sometimes used for the interdental fricative, an alternative was the Latin *d* with an extra stroke through the upper part: ð. Both devices were discarded during the Middle English period, as the writing of English, after the Norman conquest, was affected by the preference of French scribes for the digraph *th*.

0.5. The eastern churches, using their national languages, soon became relatively independent of their Greek teachers. Though their Bible was of course translated from Greek, along with much Patristic literature, the translated texts existed quite separate physically; the priests and monks read them without recourse to the Greek sources. But in the Occident the crucial motive for writing English or Irish or German was, in the first place, to **gloss** the Latin Gospels or the Latin Psalter. The national language was written for an ancillary purpose in smaller lettering: as an aid to the ignorant ones so that they might follow the oral reading of the Latin text with some degree of understanding. Thus the English or other glosses did not serve at all to dispense with the Latin.

Even after the vernacular glosses were copied out to form a running text, separate from the Latin, the monastic and other churches continued to give absolute primacy to the Latin Vulgate. Nor did the controversy in the early middle ages between the so-called Irish or Celtic liturgy and the Roman liturgy concern the Irish language; the competing rites were both entirely in Latin (except for the Greek phrase *Kyrie eleison* 'Lord, have mercy'). Only after the Protestants broke off from Rome in the sixteenth century did part of western and central Europe turn away from the Latin Bible and liturgy — though not from Latin learning otherwise.

The Latin missionaries viewed themselves as bringing the true faith to uncivilized northern barbarians, whereas the Greeks realized that some, at least, of the nations to be Christianized had their own ancient traditions of literacy. Aramaic or Syriac, for instance, had been written rather copiously in a consonantal alphabet of twenty-two letters for even more centuries than Greek; so the chief effect of Greek Christianity upon the Syriac Christians was to encourage the development of supplementary vowel-notations above or below the letters. But the German experience with runic writing and the Irish experience with oghams did not in fact suggest that for the spreading of Christianity there might be an alternative to the Latin alphabet. It may tickle the fancy of a modern scholar to imagine the Lindisfarne Gospels with the English glosses written in runic letters; but that, to the early English scribes, was utterly out of the question.

0.5. The Latin alphabet was adapted, more or less neatly, to dozens of European languages, and afterwards to several hundred on other continents (though not in the greater part of Asia). In nearly every case a majority of the phonemes posed no problem, lending themselves to immediate identification with this or that Latin letter. The rest of the phonemes were handled through a variety of devices:

(1) Deliberate revaluation of certain letters, which were not needed for the same phoneme in the more modern language as they had originally stood for in Latin; this applies most clearly to *y* and *z*, the ones added from Greek to the end of the Latin alphabet.

(2) The exploitation of other redundancies, such as the availability of both *c* and *k*.

(3) The use of a Latin digraph for a non-Latin phoneme, such as *ch* for a fricative in Irish and in German.

(4) The juxtaposition of two Latin letters to form a new digraph, such as *gh* in Middle English for the same fricative.

(5) The redefinition of variant shapes of a given letter — especially *i j* and *u v (w)* — as quite separate, independent letters.

(6) Diacritical marks in combination with certain letters, such as *š* for the palatal sibilant in Czech.

(7) Rarely, the importation of a character from a non-Latin alphabet, such as the runic *þ*.

These seven devices cannot always be clearly distinguished from one another.

I

1.1. A careful study of the Latin alphabet brings out one circumstance in its early history which has especially conduced to its flexibility, so that in time it could serve for many other languages: The original or standard set of twenty-one letters, ending with X, was extended or enlarged to represent certain Greek sounds, alien to Latin. In order to do justice to a word from Greek such as ΖΕΦΥΡΟΣ (the west wind) the Romans added two Greek letters, for the rounded front vowel /ü/ and for the voiced sibilant /z/. For the aspirate plosive /p^h/ they did not take over the Greek letter Φ but instead put together the digraph PH out of their pre-existent stock.

These devices, which produced ZEPHYRVS, bespeak the indebtedness of cultured Romans to the rich Greek civilization, especially in the last two centuries of the pre-Christian era. They learned Greek thoroughly as a second language; and in their Latin they wanted not only to pronounce thousands of Greek words — including many proper names of real as well as mythical persons and places — with the actual Greek sounds, but also to spell them accurately so that no reader should be tempted to mispronounce them, substituting a native Latin vowel or consonant.

1.2. The Greeks never paid that sort of deference to any foreign language. They were not devoid of a keen sensitivity to phonetic distinctions; but their concern to show them in writing was restricted to their own language. In the early period after they transformed the consonantal alphabet of the Phoenicians into a vowel-and-consonant alphabet, each little region of Greece modified it to express the phonology of its dialect, while the shapes of the letters also varied; e.g. the vowel added by the Greeks after T (the twenty-second and last Phoenician letter) was usually shaped Y in Attica rather than V, but the latter shape gained more favor on the nearby island of Euboea and in the part of Italy colonized from there.

Once the Ionic form of the alphabet came to be recognised as the vehicle of pan-Hellenic culture, it gradually replaced all the local varieties of the Greek alphabet, beginning with Attic, in the fifth and fourth centuries B.C.[1]

1.3. V, the vowel letter following T in the Latin alphabet and in the Euboean version of the Greek alphabet, was pronounced as a back vowel [u] both in Latin and in the Euboean dialect. Y, which follows T in the standard Ionic form of the Greek alphabet, was originally just one of several variant shapes (including V). But when Y in prominent Greek words came to the attention of Romans, it stood for the rounded front vowel [ü] of Ionic and Attic, foreign to the Latin language. Thus the Greek artist MYΣ [mü̂:s], whose name means 'Mouse', was written MYS in Latin with the Greek vowel letter, to differentiate this from the Latin word for 'mouse' MVS [mu:s].[2]

But when the knowledge of Greek declined after the "golden age" of classical Latin, this foreign sound [ü] was assimilated to the native Latin front vowel [i]. The letter *y*, henceforth pronounced [i], was still required by Latin orthography for many names and other words drawn from Greek. As the centuries rolled on, fewer and fewer scribes kept track of the items to be spelled with *y* and still distinguished them meticulously from the multitude of words with *ı*; but both letters were fixed in the alphabet. When it came to writing another language, the odd letter *y* was nearly "up for grabs". In Old English — e.g. in the plural noun *mys* 'mice' — it expressed a vowel produced by Germanic Umlaut, identical or very similar to the Y of Attic Greek with the tongue fronted but the lips rounded. In Polish, however, and other Slavic languages the odd letter *y* was revalued to stand for a sound of opposite character: a back vowel with unrounded lips [ɨ].

1.4. In still other languages the *y* has been treated as a consonant — quite a departure from its ancient function in Greek and Latin. The Latin letter I had served for both a vowel as in INSVLA 'island' and the related consonant or semi-vowel as in IOCVS 'sport, jest' (accusative IOCVM). But in late Latin, Old French, and most other Romance languages the semi-vowel underwent a phonetic change, generally to an affricate [dž]. The letter *ı* continued to be used for this affricate consonant, far different from the vowel, as in Old French *ıeu* (plural *ıeus, ıeux,* from the Latin accusative pl. *ıocōs).* When separate developments in French produced a semivowel, the scribes either wrote it with the same letter or drew upon the other letter: *ıauz, ıous, ıeux, ıex, yex* 'eyes'[3] (from Latin *oculōs).*

One motive for favoring the physically larger letter *y* came from the indistinctness of the minuscule *ı*. In several varieties of medieval penmanship this one-stroke letter looked the same as a part of other letters, *u, n,* or *m*. A graphic remedy, the dot above *i*, caught on late in the middle ages. The dot was a simplification of the ancient apex´ which had served optionally to mark certain lengthened vowels. Although the speakers of Latin, from the second century of the Christian era on, gradually lost the difference in vowel duration, scholars retained some knowledge of the apex; and the early Irish and English scribes applied it to long vowels in their languages. Later, on the continent, the use of it was revived, for a very limited and different purpose, to assure the reader that the pen-stroke underneath it constitutes an entire vowel letter, the minuscule equivalent to capital I.[4]

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[1] Later the scholars in Alexandria devised small diacritical marks and placed them above the vowel letters, to capture the fine phonological oppositions that the letters themselves left ambiguous. These were intended to facilitate a flawless reading of Homer and of Greek lyric poetry in the less familiar dialects — not at all to clarify the pronunciation of anything foreign. Even when the Hellenistic Jews translated the Hebrew scriptures into their adopted language, they took the Greek alphabet as it stood.

[2] This familiar Indo-European word is also *mus* in Old English and other Germanic languages.

[3] Finally the modern spelling *yeux;* Adolf Tobler & Erhard Lommatsch, *Altfranzösisches Wörterbuch,* IV (Wiesbaden: Franz Steiner, 1960), 1658-73, XI (1989), 7-12; Walther v. Wartburg, *Französisches etymologisches Wörterbuch,* VII (Basel: R. G. Zbinden, 1955), 310 ff.

Within Latin this was preferable to replacing the *ı* with a *y* contrary to orthography. Only in words whose orthography was confused did *y* gain the upper hand, as in *stylus* 'pen' instead of *stılus* (through a mistaken etymological link to the Greek στῦλος 'pole'). But in some other languages the visual clarity of *y* encouraged the scribes to write it, particularly at the beginning or end of a word, or between two vowels. Thus in Spanish, where the Latin semi-vocalic sound persisted unchanged in some environments — e.g. the plural adjective *maıōrēs* 'greater' has changed very little in sound — the Spanish spelling is *mayores*.

1.5. The Greek consonant letter Z, at the end of the Latin alphabet, ought seemingly to have invited widespread adoption by any and all languages whose phonology includes the voiced sibilant. Yet in Europe this has taken place to only a limited extent: One Germanic language, Dutch, and the Slavic languages that use the Latin alphabet do employ this letter freely for that sound. (The *Zuider Zee* 'South Sea' in Holland is, for us, a familiar example.[5]) But otherwise the exploitation of *z* for the voiced counterpart of /s/ was largely blocked by a confusing phonetic development in late Latin, or more precisely in a large part of the Romance world — the voicing of the erstwhile [s], especially in an intervocalic environment. This rather unfortunately made the letter *s* acceptable, in the eyes of scribes, for either the voiced or the voiceless sibilant. They could not depart from the tradition of Latin orthography in regard to *mısı* 'I (have) sent', even if they pronounced it [mizi]; and this carried over into the Italian vernacular (where the meaning had shifted from 'sent' to 'put'). For in Tuscany, and to the north, they voiced the intervocalic sibilant whether they were reading Latin or speaking and writing their own dialect.

The letter at the end of the alphabet was instead assigned the function of expressing the Italian affricate, voiced [dz] as in *zanzara* 'mosquito' or voiceless [ts] as in *zio* 'uncle'. The letter Z is called [dzɛta] in Italian. During the "golden age" of Attic this Greek letter had stood for a complex consonant, almost certainly [zd]; but by the end of the fourth century B.C. it was certainly simplified to [z]. As the evidence for other Greek dialects is meager, we should not assert that it had been [zd] throughout, to the exclusion of [dz]. Furthermore, wherever [dz] may have been pronounced in Greek or in bilingual parts of southern Italy, there would seem to be the likeliest setting for the Romance population during the middle ages to apply this letter to their vernacular, primarily for the voiced affricate but also for the voiceless.

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[4] After the printers got rid of the ligatures between letters, which made for so much confusion in handwriting, the dot above i became superfluous. They would have been wise to go back to ı; but by then the dot seemed like a required part of this minuscule letter. Quite recently a movement among the French has been promoting the dot above the capital I too.

[5] Also, what is now an English place-name *New Zealand* can be traced back to the voyage of Abel Tasman, the Dutch explorer, in 1642. Long afterwards the English came to settle those large islands in the Pacific.

No residual pockets of Greek, however, can be invoked to account for *z*, a voiced affricate [dz], in Old Spanish: *fazes* 'you (sing.) do', *fozes* 'throat', etc. (< Latin *facis, faucēs).* The Latin intervocalic plosive [-k-] had first undergone voicing (cf. **6.8**).

In Old French the letter *z* served for the voiceless affricate, in preference to the digraph *ts;* e.g. the Latin verb *portātis* 'you carry', which became [pɔrtˈæts] in the earliest French, was written *portez.* The affricate was later simplified in the western Romance languages; but in High German the affricate was permanently established — e.g. *Herz* 'heart' — with the letter *z* or the digraph *tz* to represent it.

II

2.1. The Latins had based their version of the alphabet upon that of the Euboeans who settled not far south of Latium; their largest and most thriving city was Νεάπολις (now Naples). The accommodation to the sounds of Latin was adequate, hardly brilliant. Its very imperfections, however, redounded later on to the benefit of some other languages.

2.2. The velar consonants introduced a confusion that the Latins remedied only in part. The confusion, ironically, was exacerbated by an intelligent reform in the names of the letters. Whereas the Greeks had more or less maintained the Semitic names — many of them disyllabic — although only the initial sound of each name has the function of showing what the letter stands for,[6] the Latins drastically simplified the names throughout the alphabet: The name of each vowel letter was merely its sound, A /aː/, E /eː/, I /iː/, O /oː/, V /uː/. The name of most consonant letters was the consonant along with the vowel /e/ to make a pronounceable monosyllable. If the consonant was plosive, this vowel was pronounced right after it: B /beː/, D /deː/, P /peː/, T /teː/; otherwise it was pronounced first: F /ef/, L /el/, M /em/, N /en/, R /er/, S /es/.

2.3. Unfortunately the Latins did not apply the same principle to the velar plosives: As the third letter C came out /geː/, they ought to have called the tenth letter K */keː/. But they were perplexed because the Euboean, like most other regional varieties of the Greek alphabet, had retained ϙ /kóppa/ besides K /káppa/, even though the difference was merely allophonic in Greek — as it is in Latin too — being conditioned by the quality of the vowel. In the Semitic languages the distinction was genuinely phonemic, regardless of any accompanying vowel; e.g. in Hebrew

הַכֹּל /hakkól/ 'everything', הַקֹּל /haqqól/ 'the voice';
כֵּן /kén/ 'thus', קֵן /qén/ 'nest'.[7]

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[6] In the Semitic language of origin most of the letters (if not all) were, at first, simple drawings of something easy to recognise and hence served a mnemonic purpose for beginners. The fourth letter of the alphabet, depicting a door (or perhaps a tent-flap), was called [dalɛt], and so it evoked the initial sound [d] of that noun. In the long run, however, the tendencies inherent in handwriting reshaped the letters so as to undermine their pictorial aspect utterly.

[7] The names of the letters, according to the Hebrew school tradition, are [kap̄] for כ and [kop̄] or [kup̄] for ק.

The latter had an additional phonetic feature — most likely glottalization — which did not come across into the European languages. So ϙ in the Greek language was a sort of "fifth wheel", which the Ionians wisely discarded, going right on from Π /pe:/ to P /rʰɔ:/.

But in Latin this letter, being pronounced /ku:/, bedeviled the function of the other letter K (pronounced /ka:/). By an understandable mistake in logic, the Latins fell into the trap of limiting K to the environment of a central vowel, and Q to that of a back vowel or semi-vowel. In the environment of a front vowel they fell back upon the third letter of the alphabet, making it serve not only for the verb CERAM /geram/ 'I will carry' but for the noun CERAM /ke:ram/ 'wax' (accusative case).[8] There are not many minimal pairs — such as /gru:s/ 'crane' ≠ /kru:s/ 'leg' — which prove a phonemic opposition between voiced /g/ and voiceless /k/, the same as between the dental /d/ and /t/ or the labial /b/ and /p/. Still, around 300 B.C., the dilemma was solved after a fashion: The third letter was henceforth called /ke:/ and used nearly to the exclusion of K, while a graphic modification of the third letter, in the lower right corner, kept the name /ge:/ but was inserted between F and H, the slot formerly occupied by the Greek letter Z (which was quite unneeded in Latin until the upper class embraced all the refinements of Greek culture).

Logically the reform ought to have entailed the elimination of K, but it remained a fixture in teaching children the Latin alphabet. And one extremely common abbreviation continued to be spelled with it: KAL for the odd plural noun KAL(endīs) or KAL(endās), which means the first day of the month.[9] In any written language, a familiar abbreviation is most resistant to well-intended reforms; after all, we write mainly for motives of convenience, and anything that everyone can recognise serves its purpose even though inconsistent with some superior scheme. The Romans, more than any other ancient people, brought economy into the practice of writing. As much as possible, they would abbreviate words, spelling out only the ones that could not otherwise be understood easily from the context.

2.4. Centuries later, the retention of K turned out to be a boon. For the velar consonants /k/ and /g/, wherever followed by a front vowel, underwent a drastic phonetic shift nearly throughout Latin territory: /g/ in general became /dž/; and /k/ became /tš/ in Italy and the Balkans, /ts/ in the more western areas. Latin spelling was not altered to reflect the change; for orthography had virtually frozen the written form of each Latin word as it was pronounced in the schools during the first century or so of the Christian era — regardless of any subsequent phonetic developments.[10] Latin orthography was meant, no doubt, to insure a single, unchanging standard of pronunciation; but it could not do that for very long. Inasmuch as no alternative way to spell words was then recognised, authorizing people to spell by ear as the actual sounds came out of their mouths, they were caught all the more in a bind between the written tradition of Latin orthography and their altered habits of pronunciation.

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[8] The length of the vowel, in words such as 'wax', was occasionally indicated by doubling the letter EE.

[9] Similarly the abbreviation C for the very frequent praenomen C(āıus) /ga:ius/ did not give way to G.

Once the distinction between C and G was adopted, a purely economical pedagogy would have discarded the K. But its position, tenth in the alphabet, gave it some special prominence. That can be safely inferred from the plural noun *elementa,* the ordinary term for the letters of the alphabet. (*Abecedarium* is attested only in the later ecclesiastical writers. The application of *elementa* to the Greek philosophers' elements — earth, water, air, and fire — is secondary, due to the semantic coverage of the Greek word στοιχεῖα). The etymology of *elementa* should be obvious to any unbiased ear: it is formed from the names of the letters LMN. But scholars, not divining why the eleventh, twelfth, and thirteenth letters were so privileged, have struggled in vain to explain it in some other fashion. I posit, in the classroom recitation of the twenty-one letters, a pause around the middle, right after saying K [ka:], and then the resumption of LMN. Quite possibly, the beginners and their teacher would use the ten fingers to keep track of ABCDEFGHIK. I would account for the ending *-menta* by the parallel to many such neuter plural nouns, of which *rudīmenta* 'first lessons' is most pertinent.

They continued to write with the third letter of the alphabet both *dıco* [-k-] 'I say' and the infinitive *dıcere* [-tš-] (or [-ts-]) 'to say', and likewise both *captus* [k-] 'taken' and *receptus* [-tš-] (or [-ts-]) 'taken back'. The name of the letter naturally participated in the phonetic change: it became [tše] or [tse] instead of [ke];[11] and this entailed a troublesome complication, jeopardizing the straightforward principle of the alphabet; for in the great majority of its occurrences — *dıco, captus,* etc. — the letter called [tše] or [tse] was pronounced [k]. At first, no doubt, the affricate sound was just a positional allophone of the plosive /k/; but as other changes produced new collocations of [k] with a front vowel, it made sense to recur to the letter K.

Accordingly, in the earliest manifestation of the Spanish vernacular, departing from the Latin norm — an inventory from Ardón in the tenth century — we find *kesos* 'cheeses' (descended from the Latin *cāseōs).* Writing the first syllable with the two letters *ke* was a simple expedient; *ke* also served very well for the pronoun derived from the Latin interrogative *quıd* 'what'.

2.5. Nevertheless, over the centuries when the Romance languages came up in the world (so to speak) and were copiously employed for prestigious documents of state and for literary compositions, the scribes turned against the letter *k.* Given their deep respect for classical Latin and their awareness that the same alphabet was now being applied to the vernacular outgrowths from Latin, they understandably preferred a vernacular spelling with a quasi-Latin look to one that clashed glaringly with the classical Latin model. So in Spain *ke* gave way to *que,* with a Latin digraph *qu* now standing for a single plosive consonant.

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[10] Orthography in any language must fasten upon some existing usage as its base. For English, which suffered from a nearly chaotic range of spelling variants (most of which did not in any clear manner reflect differences in pronunciation), the only base that was practically available to the teachers, printers, and lexicographers around 1700 was whatever spelling of each word happened to be more frequent and familiar than its competitors.

[11] How, in Italian, the vowel in the name changed, yielding [tši] — just like [bi, di], etc. — is a separate matter. The likeliest explanation is that during a period crucial for literacy in Latin and the vernacular the most influential center of instruction lay in the south — probably the abbey on Monte Cassino; in the South Italian dialects the Latin ē[e:], along with ĭ [ɪ], merged with ī [i:], all three coming out [i] (whereas in Tuscan the Latin accented ē and ĭ merged as [e]). So the names of those consonant letters changed to [bi, tši], etc. But the name of the vowel letter E itself had to be kept different from I, because the South Italian dialects still had a vowel sound intermediate between [i] and [a]; it came mainly from the Latin short E and from the diphthong AE.

III

3.1. In Italy the spelling *ke* for the pronoun gave way to *che;* this digraph had, if anything, superior prestige because — like PH and TH — it had served originally to represent a Greek sound. Indeed, digraphs including *h* as the second component took on an altogether new role, after the ancient pronunciation of it sank nearly into oblivion. Once the initial aspiration disappeared in all native Latin words such as *homo* 'man', *habere* 'to have', the aspiration of the borrowed Greek plosives was bound to disappear also. Thus in *charta* 'parchment' (later on 'paper') the initial sound changed from [k^h] to [k]. Conservative scribes, however, kept the spelling with *ch-;* and thus the digraph became available to stand for the usual sound of the letter *c* in certain environments.

3.2. The classical Latin precedent of digraphs containing *h* was reinterpreted to allow that letter various phonetic functions — among them, serving as a mere null. In the Italian digraph *ch,* it just indicates the plosive [k] pronunciation of the previous letter, notwithstanding the front vowel *e* or *i* after it. In other languages this digraph has been put to other uses: for the velar fricative [x], as in German *Bach* 'brook', or for the affricate [tš] in Old French *charte* [tšartə], *charme* [tšarmə] (< Latin *carmen* 'song') and secondarily in Spanish and in Middle English.[12]

3.3. Although the revival of *k* turned out to be abortive in the Romance languages, it caught on much better in the Germanic; in most of them *k* became the regular indicator of the voiceless velar plosive in native words (if not in words borrowed from Latin or French, such as *cadre).* To be sure, the Old English scribes had little need for *k,* as the third letter of the alphabet served for an allophonic dichotomy: [tš] in the environment of a front vowel, [k] otherwise. One prominent word, however, they wrote as either *cyning* or *kyning;* the vowel *y,* intermediate between *u* and *i,* may not necessarily have entailed affrication of the consonant before it. In Middle English, at any rate, the disyllabic word was reduced to *king;* Old English *cynn* became *kin* with a definitely front vowel but preceded by a velar plosive consonant. A pattern was thus established for *k* before a front vowel, while French words spelled with *c* and pronounced [s] poured into English: *citie, place,* etc.

3.4. The Greek labial aspirate plosive Φ, written PH in Latin, merged with the fricative *f.* This development pointed the way for the Irish to show the fricativation of the other two voiceless plosives, *ch* and *th.* Within Latin there could have been, at best, a meager precedent to write CH for the fricative [x], or TH for [þ]; for these two fricatives were alien to Latin.[13] However, as the Greek aspirate plosives gradually changed to voiceless fricatives, some Latins who were more or less bilingual may well have picked up the newer [x] and [β] in Greek names and other words — whether or not the adaptation of the Latin alphabet to the Irish language is traceable to such persons.

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[12] The shift of Latin [k] to [tš] before the central vowel *a* was peculiar to the Île de France. But the knightly, courtly culture of this region, centered around Paris, gained so much admiration abroad that its language became an international medium among the laity, almost as Latin served among the clergy.

In early modern French the [tš] was simplified to [š].

3.5. When Tacitus *(Ger.* 30.1, etc.) among other Latin writers called a certain Germanic people CHATTI, it is likely that the name, in their own speech, began with the fricative [x-].[14] A contemporary Latin reader's pronunciation would depend upon personal factors: his Greek education, exposure to the voices of Germans, etc. In any case, when German Christians, centuries later, took to writing their language, they regularly employed the digraph *ch* for this fricative.

IV

4.1. One step beyond exploiting the Latin digraphs *ch, ph, th* for the phonological needs of miscellaneous languages was to treat *h* as a sort of diacritic: It became available to modify the phonetic value of various other preceding letters. The new digraph *gh* served in Italian on the analogy of *ch* [k], to indicate the voiced plosive [g] before a front vowel. Thus the masculine plural of the adjective *lungo* 'long' is spelled *lunghi* to show the pronunciation [-gi], distinguishing it from the adverb *lungi* [-dži].[15] However, in Middle English the digraph *gh* served instead for the voiceless fricative [x] (which had been written *h* in Old English); e.g.

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[13] The last letter of the alphabet, in early Latin, may have stood for this fricative: EXSTRAD 'beyond', [-xs-] (rather than [-ks-]), like ΧΣ in the old Attic alphabet before it was superseded by the Ionic letter Ξ. But the classical spelling EXTRA shows X now serving for a consonant group; and we are definitely informed (by the ancient grammarians and the rhetorician Quintilian) that its sound consists of "C atque S".

After the classical [-ks-] changed to [-ss-] over most of the Romance area, it went on to [-š-] in Spanish. Hence a Spanish scribe, writing the Latin *dixi* 'I said' and pronouncing it [diši], would write this word *dixe* in his vernacular to show the vernacular pronunciation [diše], with the difference between the two languages only in the final vowel. This phonetic value for the letter *x* was applied to Spanish words whose Latin source had *ss;* e.g. *roxo* 'red' < *russu(m)* — so too in Portuguese, where *x* continues for stand for [š]. In Spanish, however, the voiceless sibilant [š] and its voiced counterpart [ž] (or the voiced affricative [dž]) — as in *iuego* 'sport' < *iocu(m)* — merged as the voiceless velar fricative, mainly during the seventeenth century; and although they continued to be distinguished in spelling: *roxo, juego,* finally in 1815 the Real Academia Española decreed that henceforth the letter *x* should be reserved for [-ks-] in "cultismos" (modern borrowings from Latin or Greek) such as *exterior, taxidermia.*

Somewhat paradoxically, nearly a hundred years later the International Phonetic Alphabet chose [x] to symbolize the very sound that *x* in Spanish no longer stood for. The letter *x* had indeed been rejected by the Real Academia just because it appeared to be no longer appropriate.

[14] Tacitus also mentions the *Chauci, Cherusci, Chamaui, Chasuarii.* Only the *Chatti,* however, lasted long enough to give their name to a part of modern Germany, *Hesse* (with the "second Germanic sound shift").

[15] The adverb comes from Latin *longē* with straightforward phonetic changes, which would have also brought about a masculine plural adjective *[luɲdži] — had no morphological factor intervened. But to maintain the paradigm of singular and plural, the velar plosive [g] of the singular (unchanged before a back vowel) was restored in the plural.

through, night. That was due to French influence — *ch* having been virtually preempted in that scribal tradition for the affricate as in *charme.*[16]

4.2. A different sort of analogy to *ch* [tš] prompted the Middle English scribes to write *sh* for the palatal sibilant [š] (which had been *sc* in Old English). This consonant sounds indeed a little more aspirate than the plain [s]. But other combinations with *h* seem quite arbitrary. In the Portuguese (and Provençal) digraph *lh* the extra letter denotes, in effect, not aspiration but palatalization [l^y]: *folha* 'leaf' (from the Latin neuter plural *folia,* trisyllabic).

4.3. The Slavic nations, being quite independent of the Old French scribes, made *ch* serve for the voiceless velar fricative [x], the same as in German. So they needed something else for their affricate [tš] and devised a different digraph *cz;* the name of the Czech language embodies both digraphs. They also used *z* to form other digraphs: *sz* [š] (= English *sh)* and the peculiar Slavic *rz* [rž]. Polish orthography has kept *cz, sz, rz* down to the present; but a reform in Czech substituted *č, š, ř* (see below, **6.9**).

4.4. For vowels that could not be simply represented by one Latin letter, various digraphs (besides other devices) were introduced. The most frequent Latin diphthong AE probably became a monophthong as early as the fourth century, losing the [a] component; so AEQVVS 'level, even' became nearly or quite indistinguishable in sound from EQVVS 'horse'. The more conservative scribes, for several centuries thereafter, continued to write *ae,* often in a ligature *æ*. The latter was adopted in Old English for the most open front vowel, intermediate between *e* and the central vowel *a,* as in *sæt* (now spelled *sat* but with no difference in pronunciation). The *æ,* not being used in Old French, was unfortunately discarded in Middle English.

In High German, however, not only the digraph *ae* but also *oe* and *ue* were adopted to show Umlaut, the fronting of *a o u* in anticipation — at least originally — of [i] or the related semi-vowel in the next syllable. The letter *e* in the digraph may have stood for the second half of an unstable diphthong, no longer distinctly [ai, oi, ui]; but its function, as the diphthong was gradually monophthongized, was (re)interpreted to be the fronting of the other vowel. The two vowels of the digraphs were sometimes ligatured; sometimes a tiny ^{e} was written above a o u. A modern reform has replaced this with two dots: ä ö ü.[17]

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[16] Subsequent changes in English have eliminated the velar fricative and left the digraph *gh* all the more anomalous, standing for [f] in *trough* but for no consonant at all in *through* and *though*. The recent reformers of spelling have had some degree of success in promoting *thru* and *tho;* but apart from that their simplifications fail to catch on.

[17] Since the eighteenth century the Umlaut vowel *ä* (or *æ*) has merged with the less open front-vowel [ɛ], so that *sprächen* (the past subjunctive) is now a homophone of *sprechen* 'to speak'. But when the composer Georg Friedrich Händel was invited to settle in England and he Anglicized the spelling of his surname to Handel, in both languages the vowel was [æ].

4.5. Doubling a vowel letter, to show length within one syllable, constitutes a special kind of digraph. AA, EE, and VV occur here and there in Latin inscriptions of the pre-classical and classical age (see above, note 8), and even in a few manuscripts of classical authors afterwards; but this device, from the point of view of classical orthography, was utterly antiquated. And yet, not too surprisingly, it reappears in certain vernacular languages of the middle ages; for it is a simple and fairly obvious way to differentiate a long vowel from its short counterpart. It had not been used in ancient Greek, because there any such sequence of letters indicates rather a repetition of the given vowel in two successive syllables: AATOΣ 'insatiate', EEPΣH 'dew' (both trisyllabic). The phonology of the modern languages in which the double vowel letter has caught on excludes that sort of syllabic sequence. Dutch is most noteworthy for the double vowels in its orthography; even a foreigner ignorant of the language may well recognise that a surname such as Roosevelt is Dutch. The Middle English scribes similarly used *oo* and *ee* to contrast with *o* and *e;* but the subsequent phonetic changes, mostly raising the erstwhile [oː] to [u] and [eː] to [i], have left us with an orthographic complication, very puzzling to beginners.

I cannot determine whether the Dutch, English and other medieval scribes were aware of the ancient Latin precedent, which had long been abandoned in Latin itself.

V

5.1. Two vowel letters of the Latin alphabet, I and V (called [iː] and [uː] respectively), stood often for the related consonant — especially (though not exclusively) at the beginning of a word when followed by another vowel letter, as in IAM 'already', VEL 'or'. It was economical not to add more letters to the alphabet for the sake of the semi-vocalic consonants, but the economy entailed a few ambiguities; thus the disyllabic CALVI 'bald' (nominative plural masculine, etc.) was spelled the same as the rare trisyllabic CALVI 'I grew hot'. At the height of the classical period the I *longa* was indeed differentiated by some scribes and stone-cutters, but for the purpose of representing the long vowel — not a consonant — in LIBIDINE 'by lust', INSTANTIS 'standing over' (accusative plural), etc. It pointed the way to a reform that might have overcome the worst inadequacy of the alphabet — failure to show when a vowel is long. But after A.D. 100 the length feature of vowels seems to have disappeared, rather rapidly, from most people's Latin speech (cf. **1.4**). To a limited extent the I *longa* continued in use for a while, but quite erratically. Afterwards, though obsolete, it was not altogether forgotten by the grammarians.

5.2. In the late middle ages it reappeared as *ȷ*, a penman's device to ease the reader's uncertainty whether *ı* was a letter in its own right and not merely one stroke of *u, n* or *m*. By lengthening it underneath (whereas the ancient I *longa* was lengthened above), the scribes could obviate or at any rate diminish the risk of misreading. They did it most of all when the vowel was repeated in successive syllables. Thus, at the end of the word *genıı* (genitive case of *genıus),* writing *genıȷ* practically precluded its being mistaken for *genu* 'knee'. Perhaps they were encouraged by some knowledge that when the double letter occurs in final position, the first *ı* is short but the other one long; so the *ȷ* was, in its way, recapturing the phonological function of the I *longa* in GENII.

5.3. Before *j* could serve primarily or exclusively for a consonant, still more changes had to intervene. The other vowel letter V became rounded at the bottom in the uncial script of the fourth century, and in its successors. That had no phonological import in and of itself; but along with a further complication of penmanship it made a great difference eventually. The ancient capital letters, however slow and tedious to copy with a pen, enjoyed too much prestige to be simply discarded. They were retained for special purposes, such as headings; and even in the midst of a text in minuscule lettering, a capital letter might be written — somewhat capriciously — instead of a minuscule at the beginning of a few words. In time a small capital *v* became habitual for many scribes.

To them it did not matter whether the initial letter was functioning as a consonant or a vowel: they would write *venıunt* 'they come' (but *conuenıunt* 'they come together'), *vt* 'as, how' (but *sıcut* 'just as'). At the beginning of a Latin word, however, it is much more likely to be a consonant; and the consonantal sound had long ago shifted, in all school pronunciations, from the semi-vowel [w] (or [u̯]) to the labial or labio-dental fricative [v]. Finally Petrus Ramus, the French Latinist (1515-72), exploited the lop-sided distribution of *v* and *u* by proposing a radical redefinition: regardless of where it comes in the word, the angular shape *v* should stand exclusively and invariably for the fricative consonant; otherwise write the rounded *u*. In effect he split one letter into two, although a new letter-name [ve] was not introduced till much later. His reform was best suited to French and to the French pronunciation of Latin, which even reduced the ancient [kw] in words like *quando* 'when' to [k] (whereas some other national pronunciations kept the original semi-vowel in this environment); the *u* of this digraph being silent, there was no point in changing its shape to *v*.[18]

During the seventeenth century the printers throughout Europe adopted Ramus' *v* and *u* for Latin and, with various modifications, for each modern language. The other part of Ramus' reform was to revalue the enlarged letter-shape *j* exclusively for the consonant, which Frenchmen pronounced as an affricate [dž] or — more recently — as a sibilant [ž]. This did not correspond to any scribal precedent and was not taken up so wholeheartedly for Latin, but it has proved advantageous to many other languages. Some of them use it for the palatal semi-vowel; others express that by means of *y* and apply the *j* to various consonant sounds less akin to the vowel [i].

5.4. The phonology of all the Germanic languages, when first written, retained the labial semi-vowel, which had changed to a fricative in late Latin. To express the Germanic consonant, the scribes resorted mostly to the double letter *uu* (in capitals VV). The idea came to them, perhaps, from Latin words such as ANTIQVVS, where the semi-vowel had not changed.[19] The ligature *w* was ultimately treated, in English and its relatives, as an additional letter of the alphabet, enlarging the sequence to UVWX.[20] Only English and Icelandic have maintained the semi-vocalic sound down to the present. In the other Germanic languages *w* has become [v]; after a lapse of a thousand years or so, they followed the lead of Romance. The German word *Wein* is now pronounced with the same initial consonant as the French *vin,* Italian *vino,* etc. But the English cognate *wine* perpetuates the semi-vowel of the Latin source.

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[18] The reform entailed the enlargement of u to create a new capital letter U.

[19] This suggestion I owe to the late Benedict Einarson.

In the Gothic alphabet, which was based mainly on the Greek, Y serves for the labial semi-vowel.

The three new consonant letters *j v w,* generated from within the apparatus of the Latin alphabet, function in English more clearly, less ambiguously than most of the other consonants — let alone the vowel letters, which have become unimaginably confusing and irregular.

VI

6.1. Given the openness of the Romans to Hellenic civilization, we may wonder why they did not embrace the Greek diacritics. For the most part, the phonological problems which those small marks addressed had no obvious counterpart in Latin. Some of them, no doubt, could have been made to serve a worthwhile purpose in Latin too; but while more or less known to educated bilinguals, they remained quite outside of Latin orthography. For instance, the diaeresis above the second of two vowel letters, showing that they do not constitute a diphthong, would have helped in odd cases like

trisyllabic COËGIT 'he/she forced', AËRE 'air' (loan-word from Greek)
but disyllabic COEPIT 'he/she began', AERE 'bronze' (both ablative).

However, the Latin apex (cf. **1.4**) in COÊGIT and ÂERE would have shown — even better — not only that there is no diphthong but that the second vowel of COEGIT is long, and so is the first vowel of AERE.

6.2. Latin culture was at its height when the apex was introduced to obviate the worst shortcoming of the Latin alphabet (cf. **5.1**). It may have been prompted, though not directly, by two Greek diacritics: the macron ¯ for long vowels (which the Latins could scarcely adopt, because they were already using a horizontal superscript to distinguish numerals such as $\overline{\mathrm{I}}$ or $\overline{\mathrm{VI}}$ from the Latin words I 'go', VI 'by force') and the circumflex accent ^ (which indicated a raised and then lowered pitch on a long vowel or a diphthong).[21]

6.3. At any rate, the obsolescence of the apex after A.D. 100 did not make the Latins more receptive to any other diacritic. The apex and the Greek diacritics were not to be found in Latin texts, but went on being mentioned in the Latin grammars that circulated in the middle ages. To that extent there was a standing encouragement for an innovative scribe to attack the problems of writing a vernacular language, within the framework of the Latin alphabet: he could supplement the letters with various extra marks. Moreover, whereas the ancient diacritics only specified some **additional** feature of pronunciation, the later use allowed a certain diacritic to **alter** the phonetic value of a letter fundamentally.

6.4. The two dots of the diaeresis, in some modern languages, have resumed the ancient function of marking a new syllable; e.g. the English verb *reëlect* (unlike

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[20] The English name *double u* anomalously preserves something from the earlier state of the alphabet, before *u* and *v* were recognised separately.

[21] See my article, "Dē prōductīs ā correptīs uōcālibus sēdulō distinguendīs," *Hermes Americanus,* 2 (1984), 166-172.

reeling). But that is quite marginal. Far more important is the altogether different use in German to show the fronting of a back-vowel (see above, **4.4**):

Vögel 'birds'	in contrast to the singular	*Vogel* 'bird'
Mütter 'mothers'	" " " " "	*Mutter* 'mother'
Häfen 'ports'	" " " " "	*Hafen* 'port'.

These plural forms used to be written *Voegel, Muetter, Haefen;* but during the nineteenth century the German authorities — especially teachers — became convinced that the *e* part of the digraphs is undesirable, being quite unlike the traditional sound of the letter *e* otherwise. The two dots, on the contrary, have no function in German besides this; the diacritical mark is more amenable to an arbitrary assignment — whatever the phonology of the German language requires.

6.5. When the Turks around 1928 gave up the Arabic alphabet and went over to the Latin, they profited much from the German model of the Umlaut vowels. For the Turkish language is pervaded even more by an opposition between the four plain vowels /u o a ı/ and their four fronted counterparts. The reform called for distinguishing the latter four by means of dots; but a couple of concessions were made to the norm of Occidental culture, which Turkey was deliberately joining: one dot, not two, was placed over *i;* and after trying out the German *ä* for [ɛ], the Turks soon dropped it in favor of *e*. For a language written with no letter *e* would look less European.

6.6. During the Renaissance the Greek accents caught the eye of humanists for their vernacular language, first in Italy and soon afterwards in other Romance countries.[22] The movements of vocal pitch, up or down, in ancient Greek — as indicated by an acute, grave, or circumflex accent — did not survive orally through the Byzantine tradition; but the ancient rule limiting the circumflex to long vowels remained familiar, and it found a helpful role in French. Conservative spelling had clung to *feste, isle, nostre* 'our', after the loss of the consonant [s], when the brief but perceptible time for articulating it went instead into prolongation of the vowel [ɛ:], etc. French Hellenists introduced a better spelling *fête, île, nôtre;* this had the advantage of reserving the letter *s* for words such as *reste* in which [s] was still actually pronounced. A further benefit was to distinguish the vowel of the possessive *nôtre* [o:] without a noun from that of *notre* [ɔ] before a noun. French obviously has more vowel phonemes than the Latin alphabet can readily represent; this Greek accent makes the disparity a little less confusing.

6.7. Some diacritics of the modern languages do not go back to anything written in classical times. The Spanish *tilde* ˜ (called *til* in Portuguese) is from the superscript horizontal line ˉ of medieval Latin scribes, who often economized by writing *āno* 'year' (ablative case) instead of spelling out *anno, āte* instead of *ante* 'before' etc. They would place above the vowel the stroke standing for *n* or *m;* but occasionally, if the Latin word had a double nasal consonant, they put the stroke further to the right, above the *n* (or *m): año.* Latin was variously pronounced from one region to another; in Castile the Latin double *-nn-* became a single palatalized [nʸ], whether the scribe was reading a Latin text or speaking his vernacular. So the graph

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[22] I have studied the details in "The Greek Diacritical Marks and Their Application to Other Languages in the Renaissance," *General Linguistics,* 24 (1984), 26-29.

ñ assumed in Castilian the phonetic value $[n^y]$, regardless of a word's Latin source: *España* < *Hıspānıa, leña* < *lıgna* 'firewood'. The curving of the superscript ˜ began as a quite optional stylization, but after the introduction of printing it came to be a uniform requirement.

The Portuguese hit upon a different use for the same mark. They placed it over the first of two vowel letters, to show that they constitute a nasalized diphthong. In some late medieval penmanship, which went in for more and more abbreviations, the horizontal stroke could substitute for *n* even between vowels, as in *cães* for *canes* 'dogs' (nominative-accusative). This graph fit the Portuguese vernacular like a glove, because the consonantal quality of the Latin [n] had melted away into mere nasalization of the vowel before and the vowel after. So *cães* (or, with stylization of the superscript, *cães)* captured the nasal diphthong beautifully.[23]

6.8. The subscript in Old Spanish words such as *façes* 'bundles of sticks', *foçes* 'sickles' (< Latin *fascēs, falcēs)* originated as a tiny *z*. This diacritic was devised to show that here the letter *c* does not stand for a voiceless plosive [k] but is modified in the direction of *z* [dz] (cf. **1.5**). However, the feature of voicelessness in the Latin [k] persisted in *ç* [ts], because the [k] was not intervocalic; rather, a consonant group *-sc-* or *-lc-* separated the two vowels.[24] Spanish later on lost the distinction between voiceless [ts] and voiced [dz]; both ended up as the voiceless interdental fricative [þ], and the *cedilla* (which meant 'little *z')* was eliminated from Spanish orthography. The mark survived in Portuguese and French, though only to evoke the sibilant [s] in the syllabic groups *ça, ço, çu* (where the plain *ca* stands for [ka], etc.)

6.9. The Bohemian movement, led by Jan Hus in the fifteenth century, for independence in religion was put down with much bloodshed; but it had permanent consequences for the spelling of the Czech language. Hus marked a dot above *ċ ḋ ṅ ṙ ṡ ṫ ż* to show palatalization (cf. **4.3**). Later this was replaced by the visually sharper mark called *haček* 'little hook': *č ň ř š ž;* the taller letters, however, receive instead a diagonal stroke immediately to the right: *ď ť*. The *haček* looks like an inverted circumflex accent, whether or not Hus's successors had the circumflex in mind.

Hus also marked the vowels, when long, with what looks like an acute accent: *á é í ó ú ý*. Its function is the same as the ancient Latin apex (cf. **1.4, 6.2**), from which it was most likely derived by way of Irish scribes of the early middle ages.[25]

6.10. Rumanian (or Romanian, the English spelling preferred by the government of the country) was for many centuries written in the Cyrillic alphabet, because the people — like the neighboring Bulgars, Serbs, and other Slavs — have been Orthodox in religion, and a large part of their vocabulary is Slavic. But as nationalism grew among the Rumanian intellectuals during the eighteenth and nineteenth centuries, they reclaimed the Latin alphabet and were eager to participate in the culture of western Europe. They knew Latin less well than the modern Romance languages, especially French and Italian, upon which they modelled their orthography to a large extent; for Rumanian and Italian are fairly close in their phonology. However, the Rumanian scholars found it necessary to use diacritics much more broadly; e.g. *sĕptămână* 'week', *puteţĭ* 'you (pl.) can' (cf. *settimana, potete* in Italian). The breve above *ă* makes it [ə]; above *ĭ* it palatalizes the preceding consonant, like the Cyrillic letter ь. The circumflex above *â* (or above *î)* makes the letter equivalent to the Slavic ы [ɨ] (cf. **1.3**).

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[23] The Portuguese equivalent to the Spanish *ñ* is *nh:* Sp. *señor,* Po. *senhor* 'lord' < Latin *senıōre(m)* 'elder'.

[24] See Paul M. Lloyd, *From Latin to Spanish. Vol. I: Historical Phonology and Morphology ...* (Memoirs of the American Philosophical Society, 173; 1987), p. 267.

[25] See Johann Schröpfer, *Hussens Traktat "Orthographia Bohemica: Die Herkunft des diakritischen Systems ..."* (Slavistische Studienbücher, IV; Wiesbaden: Otto Harrassowitz, 1968), pp. 27-30, 48-49. He suggests (pp. 24-25) that Hus got the idea of the superscript dot from the Hebrew dot inside the letters בּ גּ דּ כּ פּ תּ [b g d k p t] to show they are plosive (not fricative).

The subscript ¸ (apparently based on the *cedilla;* cf. **6.8**) under the consonant letter *ţ* makes it affricate [ts].[26] But under *ş* the same mark makes the sibilant palatal [š]. All told, the Rumanian diacritics suggest how the words diverge from their cognates in other Romance languages, while the letters themselves bring out the etymological kinship.

6.11. The writing of Vietnamese in the Latin script called Quốc Ngữ presents the most remarkable parallel in recent times to what happened in England and other countries of northern Europe a thousand years earlier — but with the difference that the Vietnamese language required extensive, not just incidental diacritics. Quốc Ngữ was devised by missionaries from the Roman church; in 1651 Alexandre de Rhodes, a French Jesuit, published *Dictionarium Annamiticum seu Tunkinense cum Lusitana & Latina declaratione* (i.e. Portuguese and Latin glosses). Except for the priests from Europe, others used Quốc Ngữ very little for the next two hundred years, as the small educated class in Vietnam was content either to write Chinese or to write Vietnamese in Chinese characters (Chữ Nôm). But after France conquered southern Vietnam (beginning in 1861) and gained a protectorate over the rest of the country, the colonial government promoted Quốc Ngữ, and it made steady if not rapid headway. Since the Vietnamese in our time won independence, the other written languages (including French) have declined sharply. The people at large — the Buddhists (and atheists) as well as the Catholics — are now literate in Quốc Ngữ, and nothing else.

Some individuals among the Vietnamese were bound to perceive that their language, when written in Latin letters (Quốc Ngữ), could be read ever so much more easily than in Chữ Nôm. Nevertheless, for Quốc Ngữ to prevail in the national culture, special circumstances had to intervene. Paradoxical as it may seem, the Communist leader Ho Chi Minh, trained in Moscow, did more than anyone else to spread Quốc Ngữ — that invention of Catholic missionaries — throughout the population of Vietnam.[27] In a deeper sense, however, both Marxism and writing in Latin letters are skills devised by Europeans, and eventually embraced by the Vietnamese for practical aims that they could not achieve while keeping within their Asian heritage.

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[26] Unlike Italian but like French, *z* in Rumanian is the voiced sibilant: *zece* 'ten'.

[27] See John DeFrancis, *Colonialism and Language Policy in Viet Nam* (Contributions to the Sociology of Language, 19; The Hague: Mouton, 1977). The sympathy of the author — who confesses his ignorance of the language (p. xiv) — often reflects the partisanship of the Vietnamese

The phonology of Vietnamese differs radically from any European language and strained the resources of the Latin alphabet. The consonants, to be sure, posed no great problem; most of them were readily represented by Latin letters or digraphs.[28] The vowels, however, comprise an extremely complex system, for which the units *a e i o u y* are not only combined to form diphthongs and triphthongs but modified with diacritics:

ă (similar to the English [æ] in *hat* except for being unfronted);
â [ʌ], *ê* [eː] or [eɪ], *ô* [oː] or [oʊ];
ơ and *ư* (unrounded back vowels).

Furthermore, each syllable has one of six tones, of which only the mid or high-mid — called *ngang* — is left unmarked. Four are shown by superscripts above the vowel: *è é ẻ ẽ,* and one by a subscript dot: *ẹ*. When both a vowel diacritic and a tone have to be placed above the same letter, as in *quốc* 'language', the typographical complication is at its worst. Nevertheless the entire orthography is firmly established and appears no longer hospitable to reform or improvement, as it was to some extent in between De Rhodes and the scholars of the nineteenth century.[29]

VII

7.1. The Latin alphabet, once Y and Z were added from the Greek in ancient times (see above, **1.1**), was not supplemented with letters from there or from any other script. The clerks, writing copiously in Latin well into modern times, encountered all sorts of languages, and had occasion to bring in names (and other words) that were pronounced with sounds utterly foreign to Latin; but those men were hardly more amenable to enlarging their alphabet than the classical writers of Rome had been. For none of those languages had the status of a superstrate, such as Greek had enjoyed among the magnates of the Roman republic when they found Y and Z indispensable. Even though the alphabet in later centuries came to be used more and more to write the other languages of Europe (alongside of Latin or in preference to it), still it has been exceptional — and for the most part only transitory — to draw in any letters not already in the sequence from *a* to *z*. Other manipulations have made the received stock of letters adequate, more or less, by assigning a special phonetic function to certain digraphs, or by modifying a letter with a diacritical stroke or other mark.

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nationalists (he avoids any mention of the prominence of Marxists among them!); in their resentment against the far-away country that had subjugated all of Vietnam, they hated to give France the credit for anything, and were even more bitter toward those Vietnamese who under the patronage of the French rulers had led in the adoption of Quốc Ngữ by schools, newspapers, etc.

[28] Only *đ* required a diacritical stroke. It is now defined as a "apicoalveolar stop, voiced, preglottalized and often imploded", whereas the plain *d* is a "voiced laminodental spirant"; Laurence C. Thompson, *A Vietnamese Reference Grammar* (Mon-Khmer Studies XIII-XIV; University of Hawaii Press, 1984-85), pp. 5, 24, 27. It would seemingly have been less confusing to write the latter *z*, and the former *d;* but perhaps the missionaries of the seventeenth century were hindered by the uneven treatment of *z* in the Romance languages (cf. 1.5): a Frenchman among them would pronounce it [z], an Italian [ʣ] or [ʦ], etc.

[29] See DeFrancis (above, note 27), p. 251; Thompson (above, note 28), p. 54.

7.2. The Old English scribes (cf. **0.4**) exercised the most freedom with the Lain alphabet, in that they actually employed the runic letters *þ* (as an alternative to *ð*, which is *d* plus a diacritic) and sometimes *ƿ* (as an alternative to *uu)* for the semivowel [u̯] (= [w]). But these runes were abandoned sooner or later; *þ* in Middle English was confused with *y* by the more ignorant scribes, and was permanently replaced by the digraph *th*. This interdental fricative changed over the centuries to a plain plosive *t* or *d* (or zero) in the Germanic languages on the continent which were originally written with *þ*. Only in Icelandic, which is highly conservative in many respects, does the runic letter *þ* persist.

7.3. When Maltese was reduced to writing in the nineteenth century, a few of the Maltese scholars wanted either to use the Arabic alphabet exclusively or to supplement the Latin alphabet with some Arabic letters; e.g. *mi*ش*ع*ula* 'spreading' (fem.). But a purely Latin script, with a few diacritics and digraphs, was adopted instead:[30] *mixgħula (x* for [š], cf. note 13; *għ* for a characteristically Semitic consonant). As the people of Malta — a Christian community — speak a basically Arabic dialect with a huge Romance vocabulary, the ش was quite unnecessary in view of the many Romance loan-words containing the sound [š]. The rejection of ع, however, is hard to justify except on esthetic grounds of incongruity with the customary Latin letters.

7.4. The Khoisan and neighboring languages of southern Africa, with their peculiar clicks (besides their complex tones), require graphemes unlike anything ever envisaged when the Latin alphabet was confined to Europe and the Mediterranean region. Learned and well-meaning scholars first latched on to some characters previously used in the Occident for another, non-phonetic purpose:[31]

/ (dental with friction),
// (lateral with friction),
≠ (palatal abrupt),
! (alveolar abrupt}.

Then, in addition to these, quite new or unfamiliar ones have been proposed.

Writing was no part of the native culture. But if the people are to continue their distinct existence while in contact with European civilization, apparently they must acquire (among other things) this skill modeled upon that of the white man. For their Christian religion depends on access to the Bible,[32] and nearly all aspects of the life implanted in their country by the Dutch and English settlers take writing for granted. It is not yet clear which — if any — of the native languages in the region will, within the next generation or century, achieve a state of literacy comparable to Vietnamese (**6.11**), and whether a phonologically accurate script will catch on.

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[30] Joseph Aquilina, *Papers in Maltese Linguistics* (Royal University of Malta, 1961), pp. 63-101b, esp. 100.

[31] Anthony Traill, *A !Xóõ Dictionary* (Quellen zur Khoisan-Forschung, 9; Köln: Rüdiger Köppe, 1994), pp. 36 ff.; D. M. Beach, *The Phonetics of the Hottentot Language* (Cambridge: W. Heffer, 1938), 299-301.

[32] Before the Reformation, the motive for putting the Bible into each vernacular was somewhat spotty. Thus the Basques, in a corner of Spain and France, lived for centuries as Christians, but with their language unwritten. Only in the sixteenth century did that change, and the first Basque books were produced by Protestants.

THE CAUSES OF IRREVERSIBILITY IN BINOMIALS: ENGLISH, FRENCH, AND RUSSIAN[1]

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1. INTRODUCTION

1.1 The Problem

Irreversible binomials are traditionally defined as pairs of words or expressions conjoined by *and*, *or*, or *nor* that occur in only one order. That is, we say *Abbot and Costello*, never *Costello and Abbott*; we say *sink or swim*, never *swim or sink*; we say *neither fish nor fowl*, never *neither fowl nor fish*. There are also expressions like *from head to toe* and *splish-splash*, which could be rendered in the opposite order but never are. There is no reason in English syntax which could explain the irreversibility. Moreover, the logic of the connectives suggests that the inverse order should be grammatical, yet the opposites do not occur. Neither logic nor the structure of English explain the asymmetry. Conversely there are pairs (*day and night*, *night and day*) that occur in both orders with no change in meaning. Why some pairs are reversible and others are not is another question.

1.2 The History

The phenomenon is neither recent nor English-specific. Panini noted pairs of this sort and wondered about the cause of the asymmetry. He observed that the member with fewer syllables generally occurred first. But he also observed that this short-before-long principle was not inviolable and that in many cases it was irrelevant: in many pairs both members had the same number of syllables. Clearly something more than word length was involved. Several major contemporary studies of irreversible binomials address the issue. Each of them contributes something to our understanding of the problem. We take them in turn.

1.3 Previous Research

The first major study of irreversible binomials is Malkiel 1959. Malkiel classified a large number of binomials, assigning each to a semantic category which would explain the pair's order. He found that five semantic categories explained most cases. For example, chronological priority explains *here-there*, social priority puts *boy* before *girl*, preference of strong over weak causes *all or nothing*, formal preference orders *aches and pains*, internal diffusion predicts *head to toe*, and loan translation gives *Father, Son, and Holy Ghost*. There is also a residue of examples that exhibit some combination of causes.

Malkiel 1959 has several positive characteristics. It studies over 600 pairs, a truly extensive data set, and introduces the idea of semantic causes for the ordering of a particular pair. But it also has serious shortcomings. Panini's short-long tendency is not among Malkiel's causes, and the assignment of a particular pair to a particular category is arbitrary: why is *aches and pains* assigned to formal preference rather than to internal diffusion? Moreover, the loan translation category is questionable. It is more of a reason for ignoring a particular binomial as non-native. Malkiel says little about what combinations of categories occur in the residue category and nothing about frequencies. In sum, Malkiel 1959 raises more questions than it answers.

Cooper & Ross 1975 (hereafter CR) use a classification that includes phonetic and phonological criteria as well as semantic ones. In their analysis, first place in a binomial is occupied by the element that inhabits the semantic domain HERE, NOW, ADULT, MALE, etc. The residue are explained by phonological categories: fewer syllables, simpler onsets, lower second formant, etc. In addition they identify a constellation of semantic domains called the Me-First (or, during the 70's, "Archie Bunker") syndrome. Overall CR present a persuasive argument, but their study also has its flaws. First, the number of categories is stunning. From a cognitive point of view, it seems unlikely that this many individual categories are all separately coded. A first-order approximation like the Me-First syndrome (CR:67) is appealing, but they do not follow up on this suggestion. Second, their categories aren't always clearly distinct, e.g. #13 (positive before negative) looks very like #17 (friendly before unfriendly), especially since *positive* is used to refer to our feelings about friends. Third, CR don't generally deal with counter-examples, even when there are substantial numbers of them, e.g. in #12 (male before female), which has a predictive value not substantially better than chance. Moreover, they also fail to consider a non-arbitrary assignment of binomials that apply to more than one set: *bread and water* is assigned to short before long, in spite of the fact that solid before liquid and decreasing second formant both apply. Like Malkiel, CR provide no discussion of the interplay between competing categories or of the effect of counter-examples; the classification is a reasonable taxonomy without empirically verification of the causes assigned.

Conversely, Adam Makkai (1972:155-60) makes it possible to pursue scientific proof of causation in irreversible binomials. Properly speaking, Makkai does not assign causes to binomials. Possible reasons are cited without comment, because his aim is to describe English idioms, not to prove causation. Regarding irreversible binomials, he makes two significant contributions. First, he identifies those binomials which are truly irreversible, e.g. *spic and span, kith and kin*. They can be reversed. But when inserted into conversation in contexts appropriate for the binomial, they become not merely ungrammatical but complete gibberish. These binomials are idioms. Other binomials are reversible, in the sense that they remain comprehensible and grammatical English phrases. However, Makkai points out that some of these reversible binomials change meaning or "lose institutionality" when reversed. Thus *Adam and Eve* refers to the couple in Genesis; *Eve and Adam* generally does not. These binomials are also idiomatic. Conversely, there are binomials like *night and day*, *day and night* that have the same meaning, whichever order they occur in. Such freely reversible binomials are not idiomatic. Makkai's classification provides two groups of idiomatic binomials and one (larger) group of non-idiomatic binomials. This classification is the foundation to our study.

2. THE BINOMIAL PROJECT

2.1 The Hypotheses

In the context of irreversible binomials, we agree on a set of empirical hypotheses. In particular,

1) there are non-structural factors that cause a particular order in idiomatic binomials;

2) more than one of these factors may apply to a particular binomial;

3) in such a case, the factors may be compatible or not;

4) if incompatible, there is a competition between the factors;

5) one factor (or a combination thereof) will dominate other factors; and

6) the relative causative strength of each factor can be determined by an overall statistical analysis.

2.2 The Project

This is a substantial, long-term goal. Yet it is possible to construct an approach that will bring us to a successful verification of these hypotheses. It involves a coding of each binomial for every potential cause, beginning with the idiomatic expressions. We note whether the potential cause predicts the occurring order, the opposite order, or is irrelevant to the occurring order. If the occurring order is predicted, the binomial is marked positively for the cause (+). If the potential cause predicts the opposite order, the binomial is marked negatively for the cause (-). If the potential cause is irrelevant to the order, the binomial is left unmarked. The data can then be subjected to a full statistical analysis of the distribution of positive and negative markings, including an analysis of covariance. This will show the relative strength of each cause to effect a particular order.

2.3 The Pilot Project

In 1992 the first two authors formulated a pilot project to provide evidence that the project as described has a reasonable chance of success. We intended to study a number of English and French binomials coded with regard to a set of four potential causes. The distribution of these causes relative to each other and to the order of the binomials being studied shows the viability of the larger study. The English binomials were successfully encoded and the results were reported in Sullivan & Casagrande 1993. We postponed the study of French data, because of difficulties in coding the binomials. Earlier this year, Casagrande returned to France and obtained a set of binomial idioms, which allowed us to proceed with the French portion of the pilot project. In the meanwhile, Belyayeva read Sullivan & Casagrande in press and joined the group, bringing a large number of Russian examples. We were thus able to return to the pilot project, complete the French portion, and add a Russian portion. We begin with an explanation of the coding.

3. CODING BINOMIALS

3.1 Temporal Order

The first potential cause is temporal order (hereafter TM). TM is an experiential cause and its potential is recognized by both Malkiel (chronological priority) and CR (several categories, e.g. NOW, PRESENT). We decided, with Malkiel, to use one more general category.

TM is a difficult category. CR considers it four--or more--categories. We believe this is due to the fact that time is relative, viewed from the (subjective) center of the temporal universe (ego) or from some (objective) reference point. The latter case is straight-forward. It may be with actual times (the office is open between *nine and five*) or with some narrative sequence (*hit and run*). The view from the center of the temporal universe may be more confusing. The sequencing there is from the center (i.e. the speaker) out. Thus we say *today, tomorrow, and the day after* but *today, yesterday, and the day before*. Contrast these temporally opposite examples with the narrative-time example *yesterday, today, and tomorrow*. There are also temporal metaphors, i.e. sequences that reflect temporal ordering because they operate in the same way. Among these are *win, place, and show* or indeed anything to do with numbering, and *bacon and eggs* (you have to start cooking the bacon first). When we list coins we parallel the number line: *pennies, nickels, dimes, and quarters*. But we say *dollars and cents* because we always read money amounts in that order: $47.52 (= whole numbers before fractions). Perhaps because we read a text from left to right and from top to bottom (or perhaps for more general cognitive or cultural reasons) these orders also represent a temporal metaphor: *head to toe*, *fore and aft*. The *general and particular* example represents another kind of temporal metaphor: the general category must exist before you can get specific instances of it. Distance can also be included. In a Euclidean-Newtonian universe, time and distance have a straight-line relationship (RATE x TIME = DISTANCE). Space is thus a metaphor for time. Movement from a source position via a path to a goal position is a more explicit example of this metaphor.

Faced with so many types of the TM category, we see why CR developed several temporal categories. However, one temporal category which has objective and subjective applications with concrete and metaphorical usages, depending on the application, should suffice.

We see cultural influences on metaphorical usages, however. Russians say *s nog do golovy* 'from foot to head' and *tam i sjam* 'there and here'. These are the opposite of English practices, but Russian is consistent in these choices, so they represent a temporal sequence **for Russian culture**. The French say *aller et venir* 'go and come'. This was unexpected, because French seems to parallel English on other metaphorical TM expressions (*ça et la* 'here and there'). However, if we look at this from the center-of-the-universe point of view, the self becomes the source of movement for *aller* and the goal of movement for *venir*. Source before goal is consistent with other French usages.

Cultural differences aside, however, TM is a powerful potential cause.

3.2 Panini's Rule

The third potential cause is short before long (hereafter SL), in terms of the number of syllables. SL does not appear in Malkiel 1959. Still, it was the first correlation observed. We assume that Panini's observation was more than mere impression and that SL applies to Sanskrit. If it can be shown to apply to other languages as well, an inter-language phenomenon may be operating. Its exact nature is beyond the scope of our project. But there is no question that SL should be included in the pilot project. CR show that it applies in a large number of cases. Moreover, it is relatively easy to code. It is thus designated the phonological factor in the pilot project.

3.3 Sex

The third potential cause is male before female (hereafter MF). Malkiel, CR, and Makkai all accept MF as a strong cause without much question, though CR notes that there are numerous exceptions. It is only part of Malkiel's larger social priority category, but it is mentioned as a separate category by CR and Makkai. In any case it reflects the greater social milieu, which should be represented in the pilot project. Note, however, that MF refers to biological sex and not to grammatical gender. Speakers at different conferences who start out talking about sex differences in language often slip into discussions of grammatical gender, an error which is easily avoided.

3.4 Alphabetical Order

To TM, SL, and MF we add alphabetical order (AO). Sullivan, whose name is near the end of the alphabet (-AO) and who grew up in the American school system, realized the strength of AO's influence in early childhood. In scholastic contexts he was stood at or near the end of every line, never followed by more than two classmates. Casagrande, who grew up in the French school system (+AO) was called on to recite every day because of a name that was at the beginning of the alphabet.[2] The third author, nee Kapaeva, is unmarked for AO.[3] It is surprising that researchers on binomials seem not to have thought of AO.[4] Public mention of it as a potential cause has not in general met with initial approval.[5] But AO is as much a social phenomenon in contemporary America, or even in the world, as MF, and perhaps more. Further, it is as literary a potential cause as SL is phonological. Finally, it is easy to code and applies to every binomial. In sum, it makes a good fourth cause for the pilot project.

3.5 Some Examples of Coding

It will be illustrative to show the coding of some of the examples given above. These are listed in table 1.

Table 1: Some Examples of English Coding

	TM	SL	AO	MF		TM	SL	AO	MF
Abbott Costello	+	+	+		Adam Eve	+	-	+	+
sink swim			+		mom pop			+	-
fish fowl			+		up down	+		-	
head toe	+		+		friend foe			-	
splish splash					friend enemy		+	-	

Most of the codings in table 1 are self-evident, but two comments are in order. *Abbott and Costello* is marked +TM because the straight man of a comic team is always listed first. This is probably due to the sequence of speaking in the act (straight line followed by punch line). None of our four reasons applies to *splish-splash*, and only -AO applies to *friend or foe*. This simply means that some factor other than those tested in the pilot project causes these orders. But this is no problem. Many other potential causes may apply to each of the pairings coded. These causes will be tested in the full study.

4. The Results

4.1 The English Analysis

A summary of the results of coding 214 English binomial pairs is given in table 2, rounded off to the nearest whole percentage.

Table 2: Distribution of Potential Causes (N_E = 214)

	TM			AO			SL			MF		
	+	-	0	+	-	0	+	-	0	+	-	0
#	112	0	102	132	82	0	66	26	122	18	10	86
%N	52	0	48	62	38	0	31	12	57	8	5	87
%Ap	100	0	-	62	38	0	72	28	-	64	36	-

where # = the raw number
%N = the % of the total examples
%Ap = the % of the applicable examples

It is clear from table 2 that there are substantial differences between the potential causes. Given the limitations placed on this project, nothing of statistical merit can be said. However, we can do more than just present the numbers. Consider TM. It is a 100% rule. It doesn't always apply, but if it does, nothing else matters. If AO predicts the opposite order (*up-down*) or if AO and SL predict the opposite order (*stimulus-response*) or if SL and MF predict the opposite order (*mother-son*) or if all three predict the opposite order (*Snow White-the Seven Dwarfs*), the TM order appears. Therefore, TM pairs should be separated from the rest. However TM pairs rank with regard to AO, SL, or MF is irrelevant. The figures for AO, SL, and MF must then be recalculated. The recalculation is given in table 3.

Table 3: Distribution of non-TM Causes (N_3 = 102)

	AO			SL			MF		
	+	-	0	+	-	0	+	-	0
#	72	30	0	29	8	65	12	8	82
%N	71	29	-	28	8	64	12	8	80
%Ap	71	29	-	78	22	-	60	40	-

4.2 The French Analysis

There were 64 binomials in our French data set. Fixed expressions that have their source in literary texts were not included in this set. Because of the lack of a large number of native speakers of French in our area, we decided to restrict ourselves to the oral examples the French author could gather during a one-week stay in France. A summary of the results of the coding is given in table 4, rounded off to the nearest percent.

Table 4: Distribution of French Causes (N_F = 64)

	TM			SL			AO			MF		
	+	-	0	+	-	0	+	-	0	+	-	0
#	38	0	26	28	3	33	26	38	0	0	1	63
%N	59	0	41	44	5	52	41	59	0	0	2	98
%Ap	100	0	-	90	10	-	41	59	-	0	100	-

As with the results for the English binomials, there are clear differences between the potential causes, but there is nothing of statistical merit to report. However, TM is again a 100% cause, and no other cause stands up to it. Removing the 38 examples examples which have a TM marking gives the recalculation in table 5 (following page).

Table 5: Distribution of non-Tm Causes (N_5 = 26)

	S L			A O			M F		
	+	-	0	+	-	0	+	-	0
#	13	1	12	11	15	0	0	1	25
%N	50	4	46	42	58	0	0	4	96
%Ap	93	7	-	42	58	-	0	100	-

4.3 The Russian Analysis

There were 127 binomials in our Russian data set. Again we attempted to exclude expressions that have their source in literary texts. A summary of the results of the coding is given in table 6, rounded off to the nearest percent.

Table 6: Distribution of Russian Causes (N_R = 127)

	T M			S L			A O			M F		
	+	-	0	+	-	0	+	-	0	+	-	0
#	80	0	47	63	15	49	55	72	0	5	2	120
%N	63	0	37	50	12	38	43	57	0	4	2	94
%Ap	100	0	-	81	19	-	43	57	-	67	33	-

Once again, there are clear differences between the potential causes, but there is nothing of statistical merit to report. Yet again, TM is a 100% cause. Removing the 81 examples which have a TM marking gives the recalculation in table 7.

Table 7: Distribution of Non-TM Causes (N_7 = 46)

	S L			A O			M F		
	+	-	0	+	-	0	+	-	+
#	18	1	27	17	29	0	5	2	39
%N	39	2	59	40	60	0	11	4	46
%Ap	95	5	-	40	60	0	71	29	-

4.4 Discussion

Some definite trends are clear from this limited study. Given the cultural differences in metaphorical temporal indicators, TM is a dominant cause in all three languages. Conversely, it is not clear exactly how to rate the strength of the other three potential causes relative to each other. There is no sense to a statistical analysis, given the limited scope of the coding, but the ratio of right to wrong predictions gives a reasonable picture of the effectiveness of each potential cause in the pilot study. These ratios are calculated from the non-temporal figures (tables 3, 5, and 7) and are summarized in table 8 (following page).

Table 8: +/- Ratio of Non-TM Causes

	N	SL	AO	MF
English (table 3)	102	3.55	2.45	1.33
French (table 5)	26	13.0	0.73	0
Russian (table 7)	46	19.5	0.33	2.50

In all three languages, SL is the strongest potential cause of the three, but its ratio in French and Russian is much higher than in English. The reason for this is probably reflected in the numbers for AO, which is a much stronger potential cause in English than in either French or Russian. Recall, however, that binomials whose coinage was in writing were excluded from the French and Russian data sets but not from the English set. This reduces the effect of this potential cause in these languages. I can offer no explanation for the difference in ratios for MF. It is the weakest potential cause in English and French, but its zero rating in French is surprising. This may well result from the size of the non-temporal sample, but a definitive statement must await the full study.

5. CONCLUSIONS

Two conclusions can be drawn at this stage of the study. First, there are definite differences in the relative strength of causes when they are in competition. Second, a full coding for all potential causes should produce a ranking of the causes, after an analyis of covariance.

A secondary correlation will have to be made, however. We suspect that there is a difference in potential strength between SL and AO that is context-dependent. That is, we suppose that AL exerts a stronger influence in binomials coined in speech, but that AO will exert a stronger influence on binomials coined in writing.

In any case, the possibility of codifying the relative strengths for non-structural and non-logical causes of linear order in irreversible binomials looks very good from here.

NOTES

[1] Preliminary reports incorporating the English data and a different, unsuccessful set of French data, appeared in Sullivan & Casagrande 1994 and in press.

[2] This form of torture was also perpetrated on the Russian author, but the teachers of the Elizabeth Green School in Newington, Connecticut, seem not to have thought of it.

[3] Not surprisingly, she was unaware of either form of tyranny until the others pointed it out to her.

[4] In particular, because both *Cooper and Ross* and *Grossman, San, and Vance* are +AO.

[5] With the notable exception of Enrique Mallen of Texas A & M.

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BIMODAL COMMUNICATION:
BORROWING, CODE-SWITCHING: WHICH?[1]

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Introduction. Bimodal communication (BC) is the phenomenon whereby an individual introduces an occasional sign into an otherwise spoken conversation, or introduces an occasional voiced or mouthed word of a spoken language into an otherwise signed conversation, in such a way that the meaning of the word or sign is communicated in both the oral and visual modes. This definition leaves open the possibility that BC can be either a type of borrowing, a type of code-switching, or both. BC differs from simultaneous communication (SC), in which an individual presents an entire message by speaking and signing simultaneously.

This article's first section establishes working definitions of the terms *borrowing* and *code-switching*. The following section analyzes a BC corpus to determine the extent to which the BC used was code-switching. The last two sections discuss the distribution of instances of BC across lexical categories and the timing of the signed element of BC occurrences relative to their spoken counterparts.

Definitions. There are many definitions of code-switching. For example, Robert Di Pietro (1977:3) gives a very inclusive definition of this phenomenon: "[C]ode-switching is the use of more than one language by communicants in the execution of a speech act." Poplack (1987:97), however, has a more restrictive definition of code-switching. She defines code-switches as, "multi-word sequences, which remain lexically, syntactically, and morphologically unadapted to recipient language patterns." Blom and Gumperz (1971),

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[1] This title is a gloss of the ASL question, "Is Bimodal Communication borrowing or code-switching?"

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and Poplack (1982) each propose typologies of code-switching. Finally, Messing (1990:463) defines code-switching as a sequential transition from one language to another within a "speech" act. (Speech is in quotes to emphasize that signing may constitute a "speech" act, even though no speech is involved.) The word "sequential" was included in this definition to differentiate code-switching from bimodal and simultaneous communication, in both of which an individual signs and speaks simultaneously.

The choice of terminology is further complicated when only one word is used from one of the languages, and the rest of the sentence is in the other (matrix) language. As we have seen, some individuals would consider this an example of code-switching. Others use special terminology to describe the individual word. The word is considered to be *borrowed* from the source language. The terms *calque*, *loan translation*, and *relexification* are often used. Calques preserve the morphological structure of one language while they borrow lexemes from another language.

Borrowings and items which have been relexified have sometimes been contrasted by saying that relexified items are more permanent; borrowings may be nonce occurrences. Two factors are often used to differentiate borrowings and code-switches. First, only a borrowing may be phonetically integrated into the matrix language. Second, monolinguals are capable of using borrowings, but they are not able to code-switch.

The current study assumes the following definitions for these words:

1. *Code-shifting* occurs when a speaker changes languages between utterances. An utterance is a stretch of speech preceded and followed by silence or a change of speaker.

1. *Code-switching* occurs when two languages are used within an utterance such that the utterance contains morphological or syntactic elements from both languages. Even if only one word of one of the languages is present, it is enough to be considered a code-switch if that word contains grammatical elements, such as inflectional endings which agree with other elements in the sentence. Code-switches can be intra-sentential or inter-sentential. An example of a code-switch between English and Spanish, taken from Sankoff and Poplack

(1981: 5), is "So you *todava* haven't decided *lo que vas a hacer* next week." Code-switches can be either sequential or simultaneous. Code-switches between two oral languages will always be sequential. Simultaneous code-switches would be instances of either bimodal communication or simultaneous communication.

2. *Borrowing* occurs when a word or words from one (source) language is introduced into an utterance which is otherwise in another (matrix) language in such a way that the utterance contains no morphological or syntactic elements unique to the source language. Because the languages involved in this study are articulated in different modes simultaneously, a criterion of phonological integration to distinguish borrowings from code-switches is irrelevant. Therefore, syntactic and morphological criteria are being used. The term borrowing will include both what have been called calques and what have been referred to as instances of relexification. An example of a borrowing from English into Spanish, taken from Sankoff and Poplack (1981: 18) is "*Llego* yesterday *la mama mía*." Borrowings can be either sequential or simultaneous. Borrowings between two oral languages will always be sequential. In a sequential borrowing, only one language at a time is articulated. Cross-modal borrowing can be either simultaneous or sequential.

3. The term *code-changing* is a new term which will be employed in this article to refer to sequential code-switching, and sequential borrowing collectively. This term will include only sequential changes in codes; hence, it will exclude bimodal communication.

BC as Borrowing and as Code-Switching. An experiment was performed on hearing females with varying knowledge of sign (from non-signers to interpreting students). The subjects were recorded both during and after the performance of five different scenarios[1]. The subjects' signing abilities were divided into four different levels: non-signers (twenty subjects), beginners (nine dyads enrolled in ASL I), intermediates (six people taking either ASL II or ASL III), and advanced signers (six women in ASL IV or interpreting classes). Their performance on a signing test confirmed the reliability of these categories.

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[1] Scenarios are activities similar to role-plays. See Di Pietro (1987) for a detailed description of them.

All instances of bimodal communication[1] were coded, using the aforementioned criteria, as either borrowings or code-switches. Table 1 presents the number and percentage of instances of BC in the data which were borrowed or code-switched. This table shows a sharp division between the people who are of at least an intermediate skill level and those less skilled in sign. The single instance of a non-signer code-switching was by a subject who was imitating the researcher's (inadvertent) use of BC. If one excludes this exception, all instances of BC by non-signers and beginners are borrowings. In contrast to this, fully one out of five instances of BC by the intermediate and advanced signers were code-switches. These code-switches indicate that the more skilled signers are not treating signs, when they are speaking, merely as stock gestures which are readily available for use, but that they are still using them as elements of American Sign Language which can be combined according to ASL grammar.

Table 1: BC as code-switching and borrowing by signing level

Level	non-signers	beginning signers	intermediate signers	advanced signers
# borrowings	8	12	69	44
# code-switches	1	0	17	11
% borrowings	89	100	80	80
% code-switches	11	0	20	20

The code-switches generally fall into one of

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1. See Messing (in press) for a description of the procedure for determining instances of BC.

two categories. The first group involves a syntactic category, such as classifier, used in ASL but not in English. The fact that instances of this type of code-switch exist gives further evidence that Sankoff and Poplack's equivalence constraint is not universally obeyed. This constraint states that

> the order of sentence constituents immediately adjacent to and on both sides of the switch point must be grammatical with respect to both languages involved simultaneously...[T]he local co-grammaticality or equivalence of the two languages in the vicinity of the switch holds as long as the order of any two sentence elements, one before and one after the switch point, is not excluded in either language. (Sankoff and Poplack, 1981:5-6)

Since English does not have classifiers, any ordering of words involving classifiers would be excluded in English. The equivalence constraint would thus predict that there should be no ASL-English code-switches involving individual classifiers at switch-points. An example of such a code-switch from the data is involves a subject using CL:G (the letter 'G' classifier, which is used to indicate thinness) which she moves to trace three sides of a horizontal square, while saying, "First they have to caulk around the building."

The second type of code-switching found in the data also involves the articulation of individual signs; these signs, however, were polymorphemic. The morphology of the signs obeyed the rules for ASL, but not for English. Two examples of this type of code-switch involve the sign WEEK[1]. One signer incorporated the handshape for the number "two" into the basic sign, in order to form TWO-WEEKS. Another signer changed the movement involved in the sign in order to articulate ONE-WEEK-FROM-NOW. Several other polymorphemic signs in the data were directional verbs which had movements showing agreement between the verbs and their subjects and/or objects.

BC and Syntactic Categories. Table 2 shows a breakdown according to lexical category of the number of instances of BC for each signing level. Two facts immediately emerge from these data. The majority of signs used by non-signers and beginners are not used in the context of language; but merely as visual effects, analogous to sound effects, mainly to indicate a phone ringing or a person knocking on a door. The more advanced signers have a much smaller percentage of their BC usage as these visual effects. Instead, their uses of BC range across a wide variety of lexical categories. The open class categories (i.e., nouns, verbs, adjectives and adverbs) include over three quarters of their instances of BC.

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[1] Capitalized words are used to represent English glosses of signs.

This accords with other researchers' findings (e.g., Lederberg and Morales, 1985, Poplack, 1988) that there is a greater tendency to code-change open class

Table 2: BC by lexical category and signing level

Level/ Lexical category	non-signers	beginning signers	intermediate signers	advanced signers
noun	1 (11[a])	0 (0)	14 (16)	6 (11)
pro-noun	0 (0)	2 (17)	1 (1)	9 (16)
verb	1 (11)	0 (0)	33 (38)	24 (44)
auxiliary	0 (0)	0 (0)	1 (1)	0 (0)
adjective	0 (0)	0 (0)	16 (17)	10 (18)
conjunction	0 (0)	0 (0)	1 (1)	0 (0)
CL or SASS[b]	1 (11)[c]	0 (0)	3 (3)	2 (4)
adverb	0 (0)	0 (0)	7 (8)	4 (7)
visual effect	6 (67)	10 (83)	4 (5)	0 (0)
other	0 (0)	0 (0)	6 (7)	0 (0)

a. Numbers outside of parentheses are the number of instances in the category. Numbers in parentheses are the percentages for each signing level. Numbers have been rounded, so the percentages may not total 100.

b. i.e., classifiers or size and shape specifiers

c. This sign was made in imitation of the researcher.

words than closed class ones. The research reported here contrasts with other research in that the plurality of the instances of BC involved verbs; whereas the plurality of code-changes noted by other researchers (e.g., Meloni, 1982, Poplack, 1988) involved single nouns. The reason for the difference is left as a point for future research. One hypothesis to be pursued in the future is that, in this respect, BC is patterning more closely to the use of gesturing than to the use of code-changing. McNeill (1986:125) hypothesized that

> each gesture indicates what, in the momentary conceptual representation of the discourse, is regarded by the speaker as the most important new meaning.

It seems reasonable to posit that the distribution of BC across syntactic categories reflects the fact that verbs often carry the new information presented in a sentence.

Table 3: Ordering of signs with respect to their spoken equivalents, by skill level

Level/Order	Non-signers	begin-ning signers	interme-diate signers	advanced signers	All subjects
sign before speech	0 (0)[a]	0 (0)	7 (8)	5 (9)	12 (7)
sign during speech	9 (100)	12 (100)	79 (92)	48 (87)	148 (91)
sign after speech	0 (0)	0 (0	0 (0)	2 (4)	2 (1)

a. Numbers outside of parentheses indicate number of instances. Numbers in parentheses indicate percentages. Percentages may not total 100, due to rounding.

Table 3 shows, by signing level, the numbers and percentages of instances of BC for which the sign occurred before, during, and after its spoken counterpart. The non-signers and beginners only used signs at the same time as the spoken equivalent. The intermediate signers signed both before and during the spoken equivalent; while the advanced signers signed before, during, or after the spoken equivalent. It is obvious, however, that the great majority of signs (91%) are made at the same time as the spoken counterpart, and only a very small number (1%) are made afterwards. There appears to be a constraint against having the sign appear after its oral counterpart. Skilled signers make the sign before the spoken equivalent approximately 8% of the time. This indicates that, while there is no absolute constraint against this ordering, it is nowhere near as likely to occur as a simultaneity of utterance. This may be the result of general processing demands. These overall findings accord with the research conducted on the ordering of gestures with speech. Such studies can not examine the order on narrow semantic grounds, since gestures rarely have as specific a meaning as signs, by their very nature, have. Therefore, these studies examine the position of gestures within their corresponding Tone Units. McNeill (1992:42) states that

> Gestures are integrated into the speech output. They anticipate the speech in their preparation phase, and synchronize with it in the stroke phase, which is timed to end at, or before, but not after, the peak syllable [in the corresponding Tone Unit].

Conclusion. Messing (in press) showed that the BC rates of the subjects were closely tied to their signing ability. The current paper has shown that not only the quantity of BC, but also the quality, varied by the subjects' signing level. The more skilled signers tended to have a larger percentage of their BC utterances be code-switches than did their less skilled counterparts. They tended to use signs which belonged to a variety of lexical categories, including some not found in English (e.g., classifiers). They were also more likely to articulate the signs before uttering the signs' spoken equivalents. All of these facts support the hypothesis that, in using BC, the skilled signers draw upon their knowledge of the grammar of ASL to produce truly bilingual utterances.

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VERBAL ACCOMPLICES:
AUXILIARIES, STYLE, AND DISCOURSE IN ENGLISH

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The study reported here can be viewed as an exercise in descriptive stylistics. It seeks to answer three broad questions: (1) Are there elements of discourse structure that characterize styles of genres, language using communities, or individuals? (2) Can these elements of discourse structure be linked to details of surface syntactic structure or lexis? and (3) Can hypotheses about discourse and style be tested quantitatively? Because the study deals with matters of constraints, linguistic as well as discourse, choices by language users, and the relationship between what is novel and what is expected in an utterance, it should be viewed as basically information theoretic in the sense of Campbell (1982), which is in turn an extension of the work of Shannon (1948).

In contrast to earlier quantitative discourse analyses, the present study is based upon a rather large sample of language in use. Here, entire chapters were taken from five crime novels of the 1980s. Works chosen for analysis were Robert Barnard's *Death and the chaste apprentice* (Dell, 1989), Amanda Cross's *Death in a tenured position* (E.P. Dutton, 1981), Sue Grafton's *'E' is for evidence* (Bantam, 1988), Tony Hillerman's *A thief of time* (Harper & Row, 1988), and Ed McBain's *Rumpelstiltskin* (Viking, 1981).

The present study is an attempt to extend a study of lexical verbs reported in (Mills, 1993). Earlier quantitative discourse analyses have tended to be cross-linguistic, e.g., analyses following the lead of Givón (1979), or cross-generic or cross-modal, e.g., Mills (1992a), though Mills (1989) did attempt to identify markers of individual style. This study attempts to find quantitatively testable differences in syntax and lexical choice among these five authors.

Because we are working here with large, intact samples of language in use, sample sizes vary considerably from author to author. The Barnard sample contained a total of 2,676 words, Cross, 5,097 words, Grafton, 3,185 words, Hillerman, 3,119 words, and McBain, 4,781 words, for a total sample size of 18,858 words.

In 1992 I noted that the number of infinitives in literary narratives, oral narratives, and freshman writing could be used to distinguish among sub-genres (oral, literary, or freshman) among the styles of individual authors (Mills 1992b). Table 1 shows the differences among the samples examined here. For these samples, only Cross shows a departure from the styles of the other authors.

Barnard	Cross	Grafton	Hillerman	McBain
42	115	44	43	45

chi-square=70.6 df=4 p<.001

Table 1. Total Infinitives

Beginning with Page's work in the 1960s, researchers have attempted to test the common sense view that the words a language user chooses characterize that person's linguistic style (Page 1966, 1968). Mills (1992b) indicated that the probability of occurrence for certain types of verbs could be used to distinguish among genres and modes of presentation (oral, literary, written-oral) in narrative discourse.

In recent years linguists have focused much attention on word classes known variously as "auxiliaries," "auxiliary verbs," "helping verbs," and so forth. Akmajian, et al., (1979) attempted to treat auxiliaries within the framework of Universal Grammar. English auxiliaries have come in for much attention--partly because English is a well-studied language, partly because auxiliaries are clearly important for English syntax, and partly because grammarians, especially generative grammarians, have had a hard time deciding on the status of auxiliaries in the language. Witness the quite different approaches taken by Chomsky (1957) and Gazdar, et al., (1985). More recently, auxiliaries have figured centrally in approaches to grammar that examine phenomena related to "grammaticalization" (Traugott & Heine, 1992). In this approach, auxiliaries are seen as crucial to understanding the notion of "semantic bleaching" (Heine, 1993).

In this study we shall look at auxiliaries in sentences like the following:

(1) *Could* John *have* written it if Mary *didn't*? -- No, it *wasn't* written by a man.
(Warner, 1993: 1)

where the italicized items are auxiliaries traditionally known as a "modal," "perfect *have*," "periphrastic *do*," and" passive *be*," respectively, although I shall treat *do* as a modal auxiliary. In addition, I shall pay some attention to the status of "quasi-auxiliaries" and "quasi-modals" like *have to, used to*, and *be going to*.

Earlier studies have asked numerous questions about auxiliaries, especially English auxiliaries: Are auxiliaries different in important ways from main verbs? Are auxiliaries heads of phrases? Or are auxiliaries modifiers of lexical verbs in verb phrases much as adjectives are modifiers of lexical nouns in NPs? If auxiliaries are heads of phrases, are they better treated as lexical heads or as functional heads? Is there a category AUX that can be seen to hold consistently across languages? And so on. Unlike the grammatical and theoretical studies mentioned above, the research reported here is "higher level research" (or "external" (L_e) research) on language use. Specifically, the study reported here is an investigation of the pragmatics of auxiliary use at the intersection of genre, discourse structure, and personal style.

The following sentences can serve as examples of the use of auxiliaries by the language users under study here:

(2) *And we* ***would have had to go through*** *all three to get to the stairs that* ***would have taken us up to the first floor.*** (Barnard)
(3) *Secondly, he* ***could have been intending*** *to use some other excuse but seized on this when he heard Connie's laments.* (Barnard)
(4) *But my husband says his children* ***aren't going to grow up*** *in a house full of women.* (Cross)
(5) *Of course, now the poor woman's* ***been murdered,*** *the police suspect me of having something to do with that.* (Cross)

(6) *Wood/Warren* ***was going to have to get*** *several contractors' estimates, and those* ***would be submitted*** *to CF along with my recommendation regarding payment of the claim.* (Grafton)
(7) *The backhoe apparently* ***had been unloaded, driven*** *about twenty yards on its own power, and then* ***rolled*** *up a makeshift ramp--presumably into the back of a truck.* (Hillerman)
(8) *The best plan* ***would have been*** *for you to have grabbed him when he* ***was driving*** *out of the yard with it.* (Hillerman)
(9) *Matthew, this* ***is going to take*** *a while.* (McBain)
(10) *I mean,* ***I'd been living*** *with him for two years, that's a long time.* (McBain)

Table 2 shows the total number of auxiliaries found in each of the works sampled:

Barnard	Cross	Grafton	Hillerman	McBain
173	336	209	233	270

Chi-square = 63.64 df=4 p<.001

Table 2. Total Auxiliaries

Clearly, the proportions of auxiliaries found in the five samples differ significantly. If we take into account the large differences in sample size and calculate the rate of occurrence of auxiliaries per thousand words of running text, we obtain the figures in Table 3:

Barnard	Cross	Grafton	Hillerman	McBain
65	66	66	75	56

Table 3. Auxiliaries per Thousand Words

As we see in Table 3, when we correct for sample size, Hillerman uses proportionally more auxiliaries than Barnard, Cross, and Grafton, and McBain use proportionately fewer auxiliaries.

When we examine the functions of auxiliary verbs--as modal auxiliaries, perfect auxiliaries, progressive auxiliaries, and passive auxiliaries--we obtain a clearer picture of the differences in auxiliary use among these authors, as shown in Table 4.

When we examine individual cells in Table 4 and compare observed frequencies of various types of auxiliary verbs with their expected frequencies, we see that differences among the works analyzed tend to be centered on the auxiliary choices of two writers, Amanda Cross and Tony Hillerman. It turns out that Cross uses many more modals than we would have expected, and Hillerman has many more passives than expected. In addition, Cross has fewer progressives and passives than expected. While Hillerman has fewer modals than expected. In addition, McBain has more progressives than expected.

Name	Modals	Perf	Prog	Pass		
Barnard	73	49	36	18	176	
Cross	171	68	62	35	336	
Grafton	69	41	58	41	209	
Hillerman	67	57	57	52	233	
McBain	100	57	82	31	270	
	480	272	295	177		
						1,224

chi-square=57.1 df=12 $p<.001$

Table 4. Functions of Auxiliaries

Table 4 shows all modals, perfects, progressives, and passives. For modals, by definition, for a sentence to contain a modal structure, it must contain an overt modal auxiliary verb. But it is possible for progressive, perfect, and passive constructions to exist in English without an overt auxiliary verb. When we count only constructions that contain overt modals, perfect *have*, progressive *be*, and passive *be*, we obtain the data recorded in Table 5.

	Modals	*have*	*be*$_{\text{prog}}$	*be*$_{\textit{pass}}$		
Barnard	73	46	24	13	156	
Cross	171	67	22	20	280	
Grafton	69	40	25	23	157	
Hillerman	67	49	13	27	156	
McBain	100	54	38	17	209	
	480	256	122	100		
						958

chi-square=42.35 df=12 $p<.001$

Table 5. Forms of Auxiliaries

Again, when we look at individual cell frequencies, we see that most of the differences among the auxiliary choices of these writers are due to the differences between Amanda Cross and Tony Hillerman. Since the numbers of modal auxiliaries did not change from Table 4, we find, as before, that Cross has many more modals and fewer progressives than expected, though now her numbers of passives are closer to those of the other writers. Similarly, Hillerman still has many more passives than expected, and McBain uses more progressives than expected.

To sum up, we can say that Cross tends to favor a style heavy in infinitives and modals, and low in progressives and passives. Hillerman tends to favor the use of passives more than the other writers and to disfavor modals. While McBain prefers progressives to passives.

If, as Palmer (1986) maintains, "modality could . . . be defined as the grammaticalization of speakers' (subjective) attitudes and opinions" (16), we might argue that Cross tends to use auxiliaries to comment on the actions denoted by lexical verbs, while Hillerman tends to avoid such commentary. Similarly, if the literary view holds true that the passive is used to avoid assigning responsibility and to predicate states rather than express actions, we might say that Hillerman's writing operates in this way, while the style of McBain tends to focus on actions rather than either commentary or the predication of states of affairs. As to the other two writers, their styles are harder to characterize from their use of auxiliaries. Proportionately, Barnard tends to favor modal, though not as much as Cross, and he tends to avoid the passive, though not as strongly as McBain. Grafton's writing, on the other hand, tends to fall at the midpoints of most quantitative scales, at least for infinitives and auxiliaries.

Finally, a word about "semantic bleaching" (Heine, 1993) of auxiliary verbs. Historically, most English auxiliary verbs began their lives as lexical verbs. Over the course of time, auxiliaries have tended to lose semantic content and to take on more and more purely grammatical functions. When we look at quasi-auxiliaries that currently seem to be developing, like the "quasi-modals" *be going to* and *have to*, we can see this process in progress. Several researches have noted that forms like *be going to* began with only the literal meaning of journeying to a place, as in:

(11) *I am going to San Antonio.*

Later, *be going to* added a more general meaning of 'going to a place, unspecified, to perform a specific action', as in:

(12) *I am going (somewhere) to read my paper.*

More recently, *be going to* has taken on the still more general meaning of 'intending to perform an action, as in:

(13) *I am going to write a paper on auxiliaries (sometime, somewhere).*

Be going to is at present interesting because it still retains all three of the meanings given above. That is, it is available in "full color," "slightly bleached," and "totally peroxided" forms. *Have to*, on the other hand, has undergone much more semantic bleaching. Today, it is hard to detect much of the meaning of the lexical verb *have* in the quasi-modal *have to*, which carries, as a unit, only the notion of obligation or necessity.

Such semantic bleaching does not appear to be limited to English. Estonian has no very *have* in the sense of the English lexical verb *have* (Moseley, 1994). To say

(14) *I have a car,*

one would use the addessive case:

(15) *Mul*	*on*	*auto.*
'1st sg addessive-	*be* present 3rd sg	car'

[Literally, "at, on, or stuck to me is car."]

To say

(16) *I have to work Friday,*

however, one says

(17) *Ma*	*pean*	*reedel*
'1st sg nom	hold/keep/have to-1st sg	Friday-addessive

töötama.
work-*ma*-infinitive'

where *have to* is expressed by the inflected form of *pidada*, and the action that must be carried out is expressed by the "infinitive of purpose" (the *ma*-infinitive). And while *pidada* still can be used in its older, lexical meanings of 'hold' or 'keep', its main function is to express a meaning almost identical to the English *have to.*

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ZEMBIAN LINGUISTICS:
DIMENSIONAL (*VS.* CONVERSIONAL) AND OPEN (*VS.* SEALED)

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This paper situates an approach to linguistics practiced by Professor Jean-Marie Zemb of the *Collège de France* in Paris, hence Zembian linguistics. I propose two methods to situate Zembian linguistics relative to mainstream linguistics and other approaches. These methods are: contrast and comparison.

To contrast Zembian linguistics with other approaches, I will distinguish *conversional* approaches from *dimensional* approaches and distinguish *sealed* approaches from *open* approaches. These contrasts will lead into a discussion of what factors might influence our judgment of the significance of one approach relative to another. The results of this discussion will suggest that several kinds of approaches to linguistics should be assigned a high value and pursued in parallel without an attempt to decide which one is the best.

A detailed comparison of the Zembian approach with other approaches as to the treatment of particular texts will be left to future papers. Those who wish to pursue a study of Zembian linguistics on their own are referred to my paper in *The Fourteenth LACUS Forum 1987* titled "Statutory Analysis". In addition, I am currently translating into English a one-hour video recently produced by the University of Nancy for French public television. The video features Professor Zemb and describes his approach to the analysis of language.

Conversional versus Dimensional Approaches

Conversional approaches are common in linguistics. In mainstream linguistics, a well-known conversion is between a surface sentence on the one hand, in a phonetic representation (often called PF for phonetic form) or a graphic representation (ordinary written language), and a syntactic representation on the other hand. Presumably, humans perform this conversion in both directions whenever they speak, write, listen, or read. Mainstream linguistics also assumes a component called *interpretive semantics*, which is a conversion from a syntactic representation to a semantic representation.

Understanding a sentence presumably includes at least a two-step conversion in which each sentence is converted to one or more syntactic representations, and each syntactic representation is converted to one or more semantic representations. Pragmatics is presumably brought in at that point, and knowledge of the situation is used to select the appropriate semantic representation, the one intended by the speaker and encoded into the sentence. Pragmatics selects from those meanings already proposed by the semantic component before considering the situation. The possibility of a semantics without context is hotly debated outside generative grammar but basic to the framework of generative grammer.

In a conversional approach, it is assumed that each intermediate result in a series of conversions includes the entire content of the sentence so that any representation can be reconstructed from any of the others. In this discussion, I am using *content* to refer to meaning and everything that is needed to obtain the meaning of a sentence. Note that such a term is not theory neutral. To use *content* in this way implies that meaning can be pinned down and fenced in.

The contrast between conversional and dimensional approaches is partly a question of assumptions about the nature of language. It becomes overtly significant when two representations of a sentence are not obviously convertible from one to the other.

A linguistic conversion is analogous to an electrical conversion or a chemical conversion. This analogy will further explain the notion of content. An example of an electrical conversion is a change of voltage performed by a power transformer. Electricity starts out at a main station at a very high voltage (typically thousands of volts), which allows transmission across long distances with little loss. Then at a substation, power transformers convert the electricity to a lower voltage so that it can be transmitted in residential areas without the bulky towers needed for high-voltage lines. Then, additional power transformers convert the electricity to a voltage used by individual homes (typically between 100 and 240 volts, depending on the country). At each stage, the entire content of the electricity, that is, the electrical energy in watts, remains constant, except for minor conversion losses in the form of heat and electromagnetic radiation. There is no need to know anything about how the electricity was generated (coal, nuclear, etc.) to determine its content in watts. Is language like electricity? Is there a content that can be determined without knowing who said the sentence in question and under what circumstances?

An example of a chemical conversion is the combination of hydrogen and oxygen to form water or, in the opposite direction, a breakdown of water into hydrogen and oxygen. Energy is released or absorbed, depending on the direction, but the content of water is still hydrogen and oxygen. It does not matter where the hydrogen and oxygen came from. Water is water. Is language like chemistry? Are there elemental building blocks of meaning that are independent of the context and purpose of a piece of text?

A linguistic conversion is assumed to retain the full content of a sentence, just as an electrical conversion retains the full content of the electricity and a chemical conversion retains the full content of the atoms being converted, regardless of the circumstances of their formation, though the form may change. A linguistic conversion is assumed to be reversible, just as an electrical conversion is reversible (the voltage can be increased as well as decreased) and a chemical conversion is reversible (a compound can be formed or broken up into its constituent atoms). See Lamb (in press) for a discussion of bi-directionality in language. This assumption of reversibility can place a large burden on a linguistic conversion. This burden is usually larger when the conversion is interesting, that is, when the two representations differ substantially. If a conversion simply identified constituents by adding pairs of parentheses, it would not be viewed as a substantial conversion. In Government and Binding, there is a D-structure that is transformed into S-structure, which closely mirrors surface word-order; however, there is no explicit procedure for reversing the transformations. In an F-structure as specified in Lexical Functional Grammar, there is a complex bi-directional non-transformational correspondence with the surface sentence. In an interlingual approach to language analysis, such as Conceptual Dependency analysis as elaborated by Roger Schank, not even the base forms of the surface sentence are retained, and the reverse conversion is even more challenging and may not be possible except as a loose paraphrase. Using another chemical example, it is not obvious that the solid sodium and the toxic gas chlorine can be converted to become the essential compound we call salt. When a linguistic representation no longer contains the original words of a sentence, the conversion to and from the original sentence is no longer obvious.

In a conversional approach, there is the implication that there are only a few well-defined types of representation and only one appropriate path between them. For example, in Government and Binding theory one would not think of converting from phonetic form to the semantic representation without passing through some kind of syntactic representation. Even in the Minimalist approach, there are the levels of Phonetic Form and Logical Form. This notion of levels in itself seems innocuous and seems to be an instance of the stratificational approach which is familiar to the LACUS community, but there is more to a conversional approach than just the notion of options at various levels. There is also the implicit claim that a sentence has content independent of the speaker (using *speaker* to include *writer*) and that the entire content is somehow passed along from level to level by the conversion procedures much the same way the content of an electrical current and of chemical elements are passed along by transformers and chemical processes.

The notion of speaker independence deserves further discussion. If speaker *independence* implies that the meaning of a sentence does not depend on who said it, then speaker *dependence* implies that the meaning of a sentence *does* depend on who said it. In the case of extreme speaker dependence, the meaning of a sentence would be entirely dependent on the speaker, and the sentence itself would make no cross-speaker contribution to meaning. This extreme position is silly. A sentence could never be understood at all without knowing who said it. For example, extreme speaker dependence would suggest that *I'm hungry* might mean that gold is a heavy metal when said by Joe and then mean that the bathtub is dirty when said by Jane. Such extreme speaker dependence is only approached in the case of demonstrative pronouns. The pronoun *this* may take on a meaning determined entirely by what is being pointed at by the speaker. Of course, such speaker dependence does not hold in general. The noun *bathtub*, for example, provides some general indications to the hearer about the object under consideration in the context of Western civilization. These general indications do not depend on the identity of the speaker. However, it is not clear that rejecting speaker dependence implies accepting the other extreme of full speaker independence in which the meaning of a sentence is in no way influenced by who said it except for demonstrative pronouns. There may be a third option somewhere between the two extremes. The Zembian approach is an example of a third option.

The question of how the content of a sentence is related to the speaker is pivotal. The standard interpretation of independence is that most, if not all, aspects of the content of a sentence are encoded in the sentence itself and that subsequently anyone who possesses the appropriate language can decode the sentence and extract the content that was encoded by the speaker. A radically different view of meaning holds that content is not in the sentence itself but substantially in the current situation, which includes the sentence, the speaker, and the hearer. In this alternative view, communication is a reflection of a social interaction between two persons involving such elements as presuppositions, gestures, and words. Once a sentence has been spoken, any hearer, including the original speaker, is free to use the sentence and interpret it in the same or a new situation, somewhat independently of the original intent of speaker. According to the standard view, the content of a previously said sentence is independent of the speaker because it has been injected into the sentence and the sentence can then carry the meaning without the speaker. Sentences are treated in isolation and it is assumed that the semantic component can function without knowing who said the sentence and why. In the alternative interpretation, the content is partially independent of the speaker because it has *not* been injected into the sentence, and each hearer is free to create a content regardless of the content in the mind of the speaker. Thus the two interpretations of speaker independence are basically opposites of each other. In the standard view, meaning is a property of a sentence; in the alternative view, meaning is not a property of a sentence but rather of a situation. Having considered these two views of content, we conclude that the standard view of linguistic conversion assumes the standard view of speaker independence. When a linguistic manipulation does not discard the words of a sentence, we will call it a conversion if there is an underlying commitment to the notion of self-contained content. Any such manipulation should also operate in reverse so as to obtain the original sentence again.

We now turn from conversional approaches to dimensional approaches. A dimension is any quality of a sentence that may bear on its interpretation, including, but not being limited to, word choice, word order, case affixes, and intonation.

In a dimensional approach, in contrast with a conversional approach, there is no attempt to claim that the entire content of a sentence is somehow captured by any one type of analysis. It does not even claim that there is a content to be captured. Instead, each type of analysis facilitates discussion of one dimension of the piece of text being analyzed. Even when all the known dimensions of a sentence have been described, the content of the sentence has not necessarily been captured, since there is no assumption of a static content to be extracted from the sentence itself. In generative grammar, there are modules that each deal with an aspect of a sentence. These could be considered dimensions if it were not assumed that together the various modules capture the entire content of a sentence. When a box has been described as having a length, a width, and a depth, all three spatial dimensions have been specified yet the content of the box has not been specified. Spatial dimensions are relevant since a railroad tie cannot fit inside a cigar box, but they are not sufficient to determine what is in a box. Adding the dimension of mass tells us more about the box, but no list of dimensions exhausts the content of the box.

When describing the weather, one can give the temperature and the direction and velocity of the wind. Each such dimension is useful in describing the weather, but no one expects a multidimensional analysis of the weather to be exhaustive. One still finds more when experiencing the weather first hand. Weather consists of more than the dimension of wind. Linguistically, the length a sentence in words is useful in describing it, but insufficient to obtain its meaning. The word-count dimension does not begin to preserve content.

In linguistics, a dimensional analysis could be the computation of the length of a sentence in words (a not so trivial task, since word boundaries are sometimes elusive); or a categorization into declarative, interrogative, and imperative; or along any number of other dimensions. A dimensional approach is much more modest than a conversional approach in that the result, such as a number representing length, is not intended to represent the content of the sentence; the original sentence and its meaning can certainly not be recovered starting only with its length; but though more modest than a conversional approach, a dimensional approach is not necessarily less useful. Clearly, usefulness must be evaluated in terms of some objective.

While sentence length is obviously only a dimension of a sentence, if the result of analysis is a sentence plus its length, then the analysis could be called either a dimensional analysis or a conversional analysis. Almost any analysis could be classified as a dimensional analysis. And any analysis that simply adds implicit information to a sentence, such as adding parentheses to show phrases or adding a length, could be called a conversional analysis. However, when it is not obvious how to recover the original sentence from the result of analysis, the distinction between conversional and dimensional becomes significant. For the purposes of this paper, when an approach could be classified either way, we will only call an approach conversional when it is assumed by the researcher that the entire content of the sentence is being passed along in each reprsentation.

Zembian linguistics is a dimensional approach in contrast with mainstream linguistics, which is a conversional approach. Zembian linguistics includes the dimension of Statutory analysis (Melby 1988). Statutory analysis deals with dimension of logical status, asking the following questions: what items are posited to exist?, what is claimed about those items (typically expressed as a verbal element)?, and how (positively or negatively) are the claims made?

We will further describe Statutory analysis, but first we must keep a promise made at the beginning of the paper. We said we would not only distinguish conversional from dimensional approaches but also distinguish sealed from open approaches.

Sealed versus Open Approaches

A sealed approach is one which can be sealed off from everything but a well-defined core and operate on its own without further human intervention. A piece of computer software called a parser is a typical example of a sealed approach. Human computational linguists set up a general-purpose parsing algorithm and then write language-specific syntactic rules and lexical entries.

The syntactic rules and the lexical entries form a grammar, and the general-purpose parsing algorithm is often called an *engine*. Once the grammar has been prepared for use by the engine, a sentence can be presented to the parser. At that point the human can walk away and leave the computer to perform on its own! The computer could even be placed in a hermetically sealed stainless steel container (assuming it is a laptop that runs on batteries) to emphasize that there is no further connection with the human operator or any other outside factors. After being sealed up, the computer can parse one or more sentences that have never been parsed before without reference to anything but its internal grammar. Any new or unusual grammatical constructions encountered in the sentence are handled by blindly applying the pre-written rules, sometimes producing laughable results. No true creativity is involved, but the results may be truly awful. Mainstream linguistics is clearly intended to be a sealed approach. Note that a sealed approach is not necessarily programmed on a computer. As has been often pointed out, the Generative Grammar literature usually does not even mention computers. However, syntactic generation and semantic interpretation are performed without reference to anything outside the formal grammar and the sentence being analyzed. Reference to the preceding or following sentence or to the situation or speaker or hearer is expressly prohibited during conversion to syntactic and semantic representations. The determination of whether or not a given sentence structure is grammatical may not be programmed on a computer, but it is sealed off from contextual factors and *could* be programmed.

An open approach, on the other hand, is never sealed off from the rest of the world. Statutory analysis is an example of an open approach. In Statutory analysis a sentence is divided into just three parts: the thema, the phema, and the rhema. Even though there are only three possible places to assign a given element of a sentence, the approach is far from sealed. Some noun phrases can be assigned to the thema or to the rhema, depending on various contextual factors. There is no way to determine in advance which factors will be relevant to the analysis and to seal off everything else. Therefore, Statutory analysis is open. Unlike mainstream linguistics, Statutory analysis is not intent on letting the human linguist walk away while an algorithm does the work. At the end of this paper, a few examples of Statutory analysis will be given.

Sealed approaches are intended to be computable. Being computable means that a computer could be programmed to perform some task without human intervention. Open approaches, however, are not computable with present computers. Computability is closely associated with the sealed/open contrast in that a desire for computability is perhaps the principal motivation behind sealed approaches. A sealed yet non-computable approach would be conceivable but highly uninteresting, since it would require human intervention yet not allow it, so we will equate sealed with computable.

At first glance, it may not be obvious why an open approach might be interesting. Indeed, if the same analysis can be performed by either a sealed approach or an open approach, almost everyone would choose a sealed approach. Other factors being equal, a sealed approach is more exciting. A sealed approach is somehow more scientific. The central issue is whether all analyses can be performed by a sealed approach. This is a fundamental question about the nature of language.

The Four Combinations of the Two Oppositions

The two oppositions described so far (dimensional versus conversional; and open versus sealed) can vary independently. To illustrate this, we will give examples of the four possible combinations of these two oppositions: sealed dimensional, sealed conversional, open dimensional, and open conversional. These examples will not be typical examples, but this is intentional. They will introduce a discussion of various factors that influence how high a value linguists place on a particular approach. It should, however, be kept in mind that mainstream linguistics would be classified as sealed and conversional.

One extremely simple **sealed dimensional** approach would be to count how many times the letter 'h' appears in a sentence. Such a procedure can be easily programmed, and the resulting number is certainly not a complete representation of the content of the sentence, since many entirely different sentences have the same number of occurrences of the letter 'h'. Thus it is sealed and dimensional. However, it is extremely trivial. A more interesting sealed dimensional tool for studying language is a concordancing system that produces frequency counts and keyword-in-context displays. The frequency of occurrence of a word in a text is only one dimension of a word.

A trivial **sealed conversional** approach would be to reverse the order of the words of a sentence. The result is easily programmed and entirely reversible. That is, the original sentence can easily be recovered by again reversing the order of the words. As previously mentioned, such a manipulation would only be called conversional if, according to the attitude of the researcher, the entire content of the sentence is determined by the words themselves, independent of the situation.

One **open dimensional** approach to language analysis would be to assign a sentence the code 'R' or 'I' depending on whether it is relevant or irrelevant to a front page story of the daily edition of the *New York Times*. Clearly, such an analysis could not be programmed in advance and sealed off using current techniques in computational linguistics. And clearly, the original sentence cannot be recovered from the single-letter relevance code; so it is not conversional. Yet, even as an open dimensional approach, a method that allows humans to assign relevance to textual material can be very useful.

A variation on the above approach is to identify newspaper and magazine articles that are relevant to various businesses. I have a friend who works for a company that employs many humans who read all day looking for relevant material. I also saw a Request for Proposals a few years ago in which the U.S. government was willing to pay for improvements to their computer system that identifies relevant articles in foreign newspapers. This system is based on a closed dimensional approach. It is unclear how accurate such a system can be when a relevant article does not contain one of the pre-determined key words that are used as a basis for relevance.

An **open conversional** approach to the analysis of a sentence might be to encode the meaning of a sentence as a binary tree labelled exclusively with a number under one hundred on each terminal node and a letter from A to Z on each non-terminal node. Each number would represent a member of a comprehensive set of primitive concepts, and each letter would represent a member of a comprehensive set of primitive relations. The resulting meaning tree could then be decoded back into the original sentence. Clearly, this would be an extremely ambitious project. Such a system would be conversional. It is more problematical to decide whether or not it is open. This is because it is not clear whether such a system could be devised.

Of course, one could cheat in the task of encoding meaning by simply encoding each letter of the source sentence as the letter itself on a non-terminal node and using the "concept" numbers to represent punctuation. Such a system would not really be an open system, since the conversion could be performed and reversed by a simple computer program. Neither would the binary tree represent the meaning of the sentence or be able to support any interesting processing. The Cyc project in Austin, Texas, is an ambitious project that is attempting to make the conceptual analysis of text into a sealed approach that can indeed support substantial processing such as retrieval of images based on natural-language queries about the content of a textual description of the image. It is unclear how successful a project such as Cyc can be.

What kind of task is traditional human translation of literature? When a sentence is translated into a target language and then translated back into the source language by another translator who does not have access to the source sentence, the result is often a paraphrase of the original rather than an exact match. It we allow translation to be classified as an open conversion or an approximation of an open conversion despite this lack of exact reversibility, then we have the most famous case of open conversion that people have attempted to make into sealed conversion. For four decades energetic and intelligent people all over the world have worked on machine translation, which is an attempt to seal up translation by making it computable. Only in the case of highly restricted source texts in a single domain has it been possible to produce high-quality machine-translation output.

The Perceived Value of Various Approaches

Which of the four approaches just described are highly valued by linguists? Mainstream theoretical linguistics places an extremely high value on sealed approaches and disdains or ignores open approaches. Since we are not treating applied linguistics in this paper, we will use mainstream linguistics to refer to mainstream theoretical linguistics. The assignment of value to sealed approaches is based on a deep yearning to be scientific on the model of the physical sciences. Experiments must be repeatable and eliminate, so far as possible, the human element. All factors relevant to the outcome of an experiment must be identified and controlled. This pre-identification of all relevant factors is consistent with a sealed approach, not an open approach. However, some of the sealed approaches given in the examples above (counting the letter 'h' and reversing the order of words) would not be at all interesting to a linguist. Clearly, even if being sealed is necessary to being highly valued, it is not sufficient. An obvious factor in being valued by linguists is that an approach be non-trivial, and specifically, for mainstream linguistics, it must deal with conversion to or from syntax or semantics.

So far, we have identified three factors that seem to be necessary for an approach to be highly valued by mainstream linguistics: it must be sealed, conversional, and non-trivial. However, most members of LACUS pursue approaches that would not qualify as sealed or conversional. Their only point of agreement with mainstream linguistics is that an approach should be non-trivial. The gap between sealed conversional approaches and open dimensional approaches is substantial. It partly explains the existence of two professional organizations (LSA and LACUS) for supposedly the same profession. LSA is oriented toward sealed conversional approaches, while LACUS is much broader.

Why is Mainstream Linguistics only Sealed and Conversional?

At a previous LACUS forum (The Twentieth LACUS Forum 1993), I presented a paper that argues at length that the philosophical basis of mainstream linguistics is an unstated and perhaps unconscious belief in a world view called *objectivism* by Geoge Lakoff and others. Objectivism supports the notion of a sentence possessing a static content and also supports the search for sealed approaches. Thus, objectivism may be a basis for a split between different kinds of linguistics and may explain why mainstream linguistics is focused on sealed and conversional approaches. I will not repeat here my arguments concerning objectivism, but in them I have attempted to show that objectivism is sufficient as a model of language only in the case of domain-specific texts. However, I do suggest that those arguments are sufficiently weighty to justify a re-evaluation of previously discarded or devalued open approaches to linguistics. Indeed, I propose that if we are ever to break the chains of objectivism that limit the thinking of so many, we must be willing to explore open approaches, both conversional and dimensional. Some linguists feel that generative grammar is moving away from being a sealed approach. If so, this would facilitate cooperation with other approaches; however, there would also have to be a time of fundamental re-evaluation of basic assumptions.

As mentioned, human translation is an open conversional process. Fortunately, Translation Studies is an active discipline that uses an open conversional approach. In parallel with machine translation research (using a closed conversional approach on highly restricted language), we should pursue Translation Studies without prematurely trying to formalize and seal up the approach, all the while carefully avoiding the assumptions of objectivism while searching for alternatives.

We should also pursue other open approaches, such as open dimensional approaches. But to do this, we must overcome the stigma of not being computable, not being conversional, and not dealing with syntax and semantics in a mainstream fashion. Perhaps, the greatest dangers along the way are: (1) slipping back into sealed conversional approaches that assume objectivism and (2) falling into triviality.

One form of triviality in an open dimensional approach is to choose a dimension that is of little interest or application to linguistics, such as (to choose an extreme example) the dimension of what number is obtained by adding up the binary values of the character codes used to represent the letters of a word. A chosen dimension may be justified on the basis of a projected use in language pedagogy or literary analysis or some other application area. If that dimension has no obvious immediate application, then it must at least be somehow interesting to many people for its potential contribution to pure knowledge.

We now turn again to sealed approaches. Chomsky chose a seemingly impractical objective for his initial sealed conversional approach that converted from syntactic to phonetic form. His objective was to build an abstract machine that generated all the "grammatical/acceptable" sentences of a language and none of the "ungrammatical/unacceptable" ones. He made no claims that it would be applicable to language teaching or translation or any other practical task. I have sometimes wondered why this disclaimer did not doom him from the beginning. It certainly would have been fatal to an open approach. The objective of random sentence generation must be interesting in itself. I used to wonder what is so intriguing about a machine that just sits there and spits out isolated sentences that fit into no coherent discourse. It did capture the imagination of a generation of linguists. Perhaps the interest was based on a hope that success in this sterile task of generating random sentences would somehow lead to a deep understanding of language and eventually to unexpected practical applications, despite the disclaimer about lack of application to pedagogy or translation. The *generative* aspect of Chomsky's work was, after all, the most significant break with American Structuralism, which was primarily taxonomic. Somehow the sealed nature of Chomsky's approach made up for the lack of proposed practical application. And there was the often stated hope that somehow a solution to the sentence generation problem would somehow lead to an understanding of the nature of language and an explanation of language acquisition.

I now suspect that one basis for interest in random sentence generation is that it is claimed to be predictive. Except for the obvious flaw of falsely equating grammaticality and acceptability, such a random sentence generator is theoretically able to predict whether a sentence will be judged by a native informant to be acceptable or unacceptable. This predictive power is an essential part of the scientific method. Setting aside the fact that acceptability is context dependent and thus is not a property of a sentence in isolation and setting aside the fact that after nearly four decades we do not actually have a generative grammar that responds the same way a native informant does, the promise of predictability is still enticing.

It should be noted that generative grammar's failure to fully deliver on its promise to provide a comprehensive theory of human language may finally be catching up with it. It no longer dominates the LSA as it used to. Now only about one LSA paper in five deals with syntax. On the one hand this can be viewed as excessive tolerance for a theory that has not yet fully delivered despite nearly four decades of research by an army of linguists. On the other hand, this can be viewed as extremely comforting for future theories that need many years to accomplish difficult tasks set for themselves. Going beyond generative grammar, it seems clear that any approach that expects to be highly valued must be able to predict something. It might predict whether a definite or indefinite or null article will be used in a noun phrase. Should we really expect an approach to be highly valued if it does not predict anything at all? I am afraid that any totally unpredictive approach would be classified as uninteresting.

How to be a Valued Open System

It is senseless to suggest that linguists should abandon sealed approaches such as generative grammar. Generative grammar is firmly entrenched within linguistics and does provide substantial insight into syntactic structure of isolated sentences. Generative grammar deserves respect for raising the intriguing question of how far a sealed approach can take us. The key questions we are raising here are whether an open approach could be valued and if so how it can coexist with generative grammar.

Open approaches cannot afford the luxury of setting for themselves trivial or uninteresting or useless tasks. Another particularly vicious error to which open approaches are prone is to use human procedures that cannot be repeated with consistency. An example is deep-case analysis. Even when deep cases such as agent, patient, and instrument are defined, it is difficult to train two analysts to come up with identical analyses of the same sentence. This is one reason sealed systems are so appealing: they eliminate human variability. A sealed system will always produce the same results for a given sentence. For an open approach to be interesting on a lasting basis, it must be possible for several humans to come up with the same or very similar analyses of a given sentence. In other words, results must be reproducible.

In an open approach, it is possible to go beyond the restriction of treating sentences in isolation. When a human is involved, the flow of discourse, the purpose of the text, and other contextual factors can be considered. This frees us from the limitation of an isolated sentence approach, but somehow we must achieve reproducibility without losing the advantage of considering context. One method would be to form a hybrid "human-plus-formal" system in which the context of a sentence is explained in a written preface. Then the human analysts could all read the same preface before analyzing the sentence. If results still continue to be inconsistent from analyst to analyst, the preface may need improvement. If results still vary, the problem could be deeper, in the core of the approach. Not all open approaches will support reproducible results. We need to identify those that will and those that will not. Then, among those with reproducible results, the approaches with the most useful applications will likely be the most highly valued, provided they present testable hypotheses.

An essential property of a highly valued system is that it presents testable hypotheses. Generative grammar predicts what a human informant will say about a sentence. This prediction can turn out to be right or wrong. A test can be designed that could invalidate or further confirm a testable hypothesis. Einstein predicted that light would be bent by gravitational magnets. That prediction has been confirmed. Zemb predicts a certain kind of invariance under paraphrase. Each of these claims is testable and could turn out to be false. However, some hypotheses cannot be tested. For example, the claim that the stock market will go up, down, or stay the same is not testable since there is no condition under which it could be falsified. Likewise, the claim that each noun phrase in a sentence has a thematic role is not testable unless there is a clear set of conditions under which a noun phrase would not have a thematic role.

Would a hybrid system that includes both a human analyst and a formal mechanism be considered a scientific approach? If it makes predictions and delivers reproducible results and testable hypotheses, could it be denied scientific status? Let us hope not.

Several such hybrid approaches are currently being pursued. An example is the on-going work of Gary Prideaux, which was reported on during the present LACUS Forum. Prideaux devises reproducible psycholinguistic experiments that provide insight into syntactic issues.

Although there are dangers to avoid in pursuing open approaches to language, a bit of open-mindedness should make it clear that the promise of breaking out of the mold of mainstream theoretical linguistics makes the pursuit worthwhile. If I am correct in claiming (as argued at length in my 1993 LACUS paper) that mainstream linguistics is based on objectivism and if objectivism is inherently limited and unable to explain dynamic general language, then other approaches must be pursued in addition to objectivist approaches.

Hopefully, this brief discussion supplies a motivation to look seriously at open approaches, both conversional and dimensional. We should perhaps propose an historic negotiation. While encouraging a continuation of sealed approaches, both conversional and dimensional, on domain-specific controlled language, we trade that encouragement for approval of open approaches, both conversional and dimensional, on dynamic general language, so long as the method is repeatable and the approach is predictive and has useful applications in translation, pedagogy, or other areas.

Zembian linguistics is an open dimensional approach that seems to be repeatable and may have applications in translation, composition, and pedagogy. It is certainly predictive. For example, statutory analysis predicts that a sentence and its careful translation may differ substantially in grammatical structure but that their statutory analysis will remain essentially the same. Much research remains to be done, but now we have a framework in which to examine Zembian linguistics and other open approaches.

A Brief Examination of Zembian Linguistics

We will now choose a few extracts from the recent video on Zembian linguistics to introduce Statutory analysis. The video was filmed in Austria in a region called the *Salzkammergut*. One lake in this region is Lake Mondsee (literally, "moon lake"), and on this lake, is an abby which was founded in the eighth century. Around the abby, a number of guilds were established, such as the weavers, the bakers, and the butchers. Each guild kept its funds and its records in a chest that had three locks. It took three different keys, typically held by three different people, to open the chest. Zemb suggests that three keys are also needed to understand language: (1) a study of words on their own, (2) a study of various links between words, and (3) a study of human thought.

Zemb also emphasizes the importance of experimentation. Perhaps, as mentioned above, the mainstream objective of generating all the sentences of a language is intriguing because it suggests that some day the machine will be able to tell us whether a particular sentence is acceptable and if not, why not. For Zemb, experimentation includes a search for explanations of why sentences are unacceptable, but there are substantial differences between his approach and that of mainstream theoretical linguistics. For Zemb, as for many non-generative linguists, isolated sentences are not appropriate objects of study. Only a sentence situated in a conversation or a text should be analyzed. This immediately makes his approach open rather than sealed and partially explains why it has not received more attention in the United States, since sealed approaches are current dominant in the United States. Also for Zemb, there are multiple dimensions of analysis of links between words. An immediate constituent analysis may be one useful dimension. Another dimension is Statutory analysis. Statutory analysis is concerned with the logical status of the elements of a sentence. The thema typically consists of those elements that are claimed to exist; the rhema consists of the verb and related elements that make claims *about* the thema; and the phema consists of those elements which connect the thema and the rhema. A surprising aspect of Statutory analysis is that a noun phrase that is a complement of the verb according to mainstream grammatical analysis may be assigned to the rhema or to the thema, depending on its logical function.

Some applications of Statutory analysis are to an explanation of German word order and to the study of translation. Zemb is a germanicist and has long sought for a more satisfying explanation of German word order than what is given in standard grammars. Using Statutory analysis, he hit on the method of taking the dependent clause order, with the verb phrase at the end, as the basic order and main clause order as the exception, with one verbal element "moved" to the front of the sentence to signal that it is a main clause, contrary to the usual assumption that main clause order is primary. However, instead of movement rules, Statutory analysis discusses the order in which words are pronounced as opposed to their logical status. This is one aspect of the application of Statutory analysis to German. Zemb has published extensively (in German and French) on this topic. See Melby (1988) for a biblography.

As mentioned above, another application of Statutory analysis is to translation. Zemb claims that the status of sentence elements (the Statutory status) remains invariant under careful paraphrase and careful translation, even though the grammatical structure changes considerably. This is a substantial claim. A graduate student of mine (Golze, 1989) has tested this claim on various Bible translations of the same verse and has found that the claim is true, by and large. This area certainly deserves further study. Another project that should be pursued is a study of whether analysts can be trained to produce identical or nearly identical Statutory analyses of the same text. If so, that is, if results are reproducible, Statutory analysis could have many applications in explaining why certain sentences are unacceptable or very strange. One promising application is as a factor in the explanation of when a noun phrase can be passivized.

When a dimensional approach is taken, there is no need to identify any one dimension as the correct or best one. Another dimension of analysis that should be pursued is the search for invariant elements of meaning in individual words. Although the core or invariant meaning may not be sufficient to explain the details of the full range of uses, that full range should share meaning to some degree. Identification of these core meanings may eventually be helpful in better explaining how we interpret dynamic metaphor. Identification of core meanings based on the approach of C. S. Peirce seems especially promising.

Another dimension of analysis that should be pursued is Topic-Focus analysis as elaborated by the Prague school in the Czech republic. Although some efforts have been made to automate the assignment of topic and focus, it remains predominantly an open dimensional approach. Basically, the topic is what is presented by the speaker as information that is already familiar to the hearer, and the focus is the information that the speaker believes to be new to the hearer. Topic-Focus analysis concerns the flow of discourse. For more information on Topic-Focus analysis, see Sgall et al (1986) and Hajicova et al (1995). Topic-Focus analysis has various applications. A recent conversation with a member of the Prague school indicates that Topic-Focus analysis may be useful in translation from a language with rich inflections but no articles into a language such as English with little inflection but articles. The articles must be computed, and language learners often have difficulty using articles appropriately. It may be that, in conjunction with other factors, the topic tends to receive a definite article while the focus receives an indefinite article. Going the other direction, into a highly inflected language, Topic-Focus analysis may help explain subtleties of word order options.

Michael Cummings, in his 1994 LACUS paper, presented a computer program for predicting which parts of a text are new and which are given. It is unclear whether his system should be classified as open or sealed. Before processing a text, the human analyst must construct a semantic tree relating the lexical items in that text. Perhaps this pre-analysis seals up the open factors. It is also unclear how his definition of given and new relate to theme-rheme or topic-focus in Systemics and in the Prague school. Further work is certainly warranted.

Various types of discourse analysis and Statutory analysis from Zembian linguistics may all be parts of a new solution to the puzzle of language analysis, forming various dimensions of a somewhat open approach.

Future papers will hopefully explore Zembian linguistics further. We will end with just a few sample sentences to contrast Statutory analysis and Topic-Focus analysis.

Preface: Your friend remarks that the fruit basket is not as heavy as it was before and asks what happened. You answer that you ate an apple and place the stress on *apple*.

(1) I ate an apple.

Topic-Focus analysis: *an apple* is the focus (the new information).

Statutory analysis: *I*, *an apple*, and <past> are in the thema, while *eat* is the rhema. The phema is affirmative. The sentence is implicitly claiming that you and the apple existed at some point in the past. *Eating* is the rhema positively applied to the thema.

Preface: Your friend says she is going to the grocery store to get some unbleached flour and asks if you want her to get you some fruit.

(2) I want an apple.

Topic-Focus analysis: same as sentence (1).

Statutory analysis: *an apple* shifts from the thema to the rhema! Why? Because it is no longer posited as existing. The grocery store may be out of apples. Here is where Statutory analysis and Topic-Focus analysis diverge. Statutory analysis does not say that Topic-Focus or any other discourse-oriented analysis is wrong, just that they treat a different dimension.

One way for an analyst to test whether an item is in the thema or the rhema is to apply negation and see what is still posited to exist. The negation of sentence (2) could be:

(3) I don't want an apple.

Here an apple is not claimed to exist, providing evidence that it was in the rhema in (2) as well.

But the negation of sentence (1) would not likely be:

(4) I didn't eat an apple.

Sentence (4) would not be an appropriate response in the situation of (1). Why? Statutory analysis would explain it by pointing out that the apple phrase has shifted from the thema to the rhema. The situation concerns actual pieces of fruit, so it is not appropriate to shift the fruit into the rhema. Generative grammar could not disqualify (4) since it is fine in isolation and generative grammar forbids use of context.

Back to the search for an appropriate negation of (1), we might try:

(5) I did not eat any of the fruit.

Here the definite article on fruit is an indicator that actual pieces of fruit are claimed to exist, supporting the analysis of apple in (1) being in the thema.

Another type of negation is a self-correction. A self-correction of (1) might be:

(6) I didn't eat an *apple*, I ate a *pear*.

Here a piece of fruit is clearly claimed to exist.

Next consider the following sentence in context:

Preface: You say that your friends moved and that it only cost one thousand dollars. I can't evaluate whether that was a good deal. I don't even know where they moved from or to. The person you are talking with replies:

(7) They moved from Chicago to Boston.

Topic-Focus analysis: "from Chicago to Boston" is clearly the focus.

Statutory analysis: "they" and <past> are the thema; "move from Chicago to Boston" is the rhema (a complex verb).

Now consider the sentence:

Preface: You say your friends ended up in Chicago. Where did they come from?

(8) They moved to Chicago from Boston.

The answer in (8) is redundant. It could just have well have been:

(9) From Boston.

Topic-Focus analysis: the focus is now just "from Boston" since "to Chicago" is not new information. Notice how English written word order suggests this.

Statutory analysis: same as sentence (7).

Note that in one case the statutory analysis changed while the Topic-Focus remained similar and in the other case the statutory analysis remained unchanged while the Topic-Focus analysis shifted. This demonstrates that the two approaches cannot be conflated, contrary to the assumption made by some linguistics who have not examined both approaches carefully and throw them into the same bin. Topic-Focus analysis deals with presuppositions about the hearer's knowledge while Statutory analysis deals with presuppositions about existence in the world.

Suppose you and your companion have just finished eating salads at a restaurant. Your companion asks you how you like the ingredients of the salad. You reply:

(10) I like the radishes.

Note that you would not reply "I like radishes," except as an introduction to a statement about the specific radishes in the salad, since that would be placing radishes in the rhema when the reply is expected to deal with specific thematic ingredients of a real salad. It is beyond the scope of generative grammar to deal with such extra-sentential issues.

Much further work on Zembian linguistics is warranted. It is an open approach that requires a human to perform statutory analysis. It is a dimensional approach that emphasizes the logical status of constituents. If statutory analysis as performed by humans can be shown to be repeatable, then this type of analysis in a package with other dimensional approaches may eventually form a very useful open paradigm (in parallel with generative grammar for sealed conversional study of domain-specific language) for analyzing dynamic general language in translation studies, literature, and pedagogy.

Hope for the Future

On a more general note, it is hoped that this paper can nudge two groups of people toward each other. Generative linguistics might begin to recognize the validity of open approaches provided they involve repeatable results and testable hypotheses, and non-generative linguists might take additional care that their results are indeed repeatable and their hypotheses testable.

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INCLUSIVE LANGUAGE OF THE UNITED METHODIST HYMNAL: DEGREES OF SUCCESS

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The United Methodist Hymnal, published 1989, was vastly edited from its 1964/66 predecessor to reflect inclusive language, one of the Hymnal Revision Committee's main charges. The hymnal uses different methods to achieve more inclusive language, especially non-gendered language referring to human beings and to God, and also more inclusive language to deal with social sensitivities concerning ethnic groups, the physically challenged, and political and social awareness for justice and peace for all. This study examines one out of the many procedures used to achieve currently more inclusive language: options given to hymnal users. The options include 1) symbols such as asterisks or daggers to footnotes either inviting one to use a more inclusive term or to footnotes to delete certain wording which might offend more conservative persons; or to footnotes which offer another inclusive language term as an alternative to an already inclusive language term; 2) options which include alternate versions side by side—in one case the same hymn cited in Spanish after the English version is cited; in another instance, two parallel English versions of the same hymn side by side; and 3) options in terms of language to be used, whether English or a foreign language or both. This study examines the degrees of success which have been attained in arriving at inclusive language in these cases: the auspiciousness or infelicity of results according to this investigator's own perspective.

The most felicitous and appropriate editing is 'On Eagle's Wings' (#143), an entirely new hymn included, really just a refrain from the whole hymn, originally a vocal solo from the Catholic tradition (Young 1993:778), with the original words of the refrain using *He* and *you*. The words replace the third-person masculine pronoun with *God* and *God's*, with this result (italics for emphasis my own in quoted passages of this article):

> And *God* will raise you up on eagle's wings, bear you on the
> breath of dawn, make you to shine like the sun, and hold you
> in the palm of *God's* hand.

However, the footnoted symbols indicate that *God* can be replaced by *you* and *your* and the original second-person pronoun by *us*. The result of the option if taken would be a more personal address, more like a performed address to God of affirmation of God's goodness:

> And *You* will raise *us* up on eagle's wings, bear *us* on the
> breath of dawn, make *us* to shine like the sun, and hold *us* in
> the palm of *your* hand.

Rather than telling what God does, the result is a direct and personal address to God, a more powerful emotive statement that dramatizes the relation between the utterer and the addressee. No objections can be made to such an option offered. In fact, the text would even be better if the immediate version cited above had been printed as the only version to be sung.

In contrast, however, the asterisked options for 'We Utter Our Cry' (#439), a new hymn, do not offer possible substitute word choices but permit deletion of two whole verses—verses 4 and 5—about political matters: 'leaders conferring round tables for peace, that they may from bias and guile be released' and 'love, in protest and march'. The inclusion of these verses followed the Hymnal Revision Committee's charge that texts, in promoting justice for all and thus being inclusive, should promote 'international understanding and cooperation' and 'the eradication of war and the establishment of justice and peace' (Young 1993:132). However, the Committee at first did not want to print verses 4 and 5. It feared more alienation from its constituency, after the onslaught of 11,000 pieces of mail on the Committee's initial decision, widely publicized by the media, to drop 'Onward Christian Soldiers' by a split 11-10 vote, because of the hymn's metaphors for war, a decision which threatened adoption of the new hymnal (135-7). Only 44 supported the move out of 11,000 pieces of mail. And even death threats were received by some of the Committee members (Grindal 1989:191).

The Committee thus did not want to appear to 'encourage "unpatriotic" peace and anti-nuclear arms protests and marches' (Young 1993:682) by the inclusion of the two verses of 'We Utter Our Cry.' But its author, Fred Kaan, who would not agree to the publication of his text without the verses, firmly said:

> I cannot agree to you leaving out verses that commit us to protest and demonstration, and to following our (usually) mealy-mouthed church resolutions on peace with an active involvement in the peace-movement. Peace is something that has to be *pursued.*
>
> . . . .
>
> . . . All that is left is prayer, and I believe that prayer is no good without action. (682)

The verses were thus included. But the Committee apparently thought the asterisks would act as a safety valve.

One wonders, however, about the furor of printing these verses, when another new hymn, 'O God of Every Nation' (#435) discourages 'trust in bombs that shower destruction through the night' and 'release from rattling saber, from dread of war's increase'—even stronger anti-war notions than the ones in the asterisked verses. Perhaps as author Fred Kaan suggested above, members are quick to endorse sentiments of peace without embracing the discomfort of the accompanying necessary activism. Or perhaps because the Committee was already hypersensitive about criticism from the 'Onward Christian Soldiers' controversy, it did not realize that the Methodist membership was more disturbed about dropping an old favorite than were they disturbed about words which discouraged war in general. Perhaps the members were not disturbed about words against actual physical warfare, but about words which did not acknowledge the necessity of conducting biblical spiritual warfare. Thus, the new hymn's verses might not have caused the ruckus that accompanied the initial move to drop 'Onward Christian Soldiers'. After all, an old-time favorite such as 'God of Our Fathers, Whose Almighty Hand', now retitled 'God of the Ages, Whose Almighty Hand', in the new hymnal (#698), pleads for deliverance from 'war's alarms, from deadly pestilence'.

But whatever the reason, the asterisked verses anticipated possible objections from its membership with pluralistic orientations. Although it might be objected that the Committee lacked the courage to leave the verses unasterisked, it is conceivable that some conservative members would have been alarmed at especially the notion of engaging in protest and marches, radical actions anathema to them, and thus would have roused action against the adoption of the hymnal.

This inconsistency—asterisking one text, but not another text on a sensitive subject—is reflected in other options given. For example, for 'O for a Thousand Tongues to Sing' (#57), verse 6 is asterisked as a possibility to be omitted with its reference to the deaf, the dumb, the blind, and the lame, all physically challenged persons. The editor states that this stanza may be omitted 'in deference to perceived discriminatory language' (Young 1993:511). This hymn, which traditionally opens a Methodist hymnal, however, has its verse 6 edited for an alternate version, a Spanish version. The Spanish counterpart appears after these two selections: 1) the English version of the hymn with the asterisked verse; 2) the full printed text of Charles Wesley's version of the hymn, the poetic text created before it was set to music, a text which contains many more verses than what hymnals customarily print.

The Spanish version of the hymn with notes, placed right after Wesley's poetic text, has no asterisk for verse 6, because verse 6 has been edited to delete any reference to the dumb, though it does mention the other physically handicapped: the deaf, the lame, and the blind:

Mil voces para celebrar
Escuchen, sordos, al Señor;
alabe el mundo a Dios,
Los cojos salten,
vean hoy los ciegos al Señor.

An English translation of these verses may be rendered as

A thousand voices to honor God—
Listen, deaf ones, to the Lord;
World, give praise to God:
The lame leap;
Today the blind see the Lord.

The most offensive term because of language change—the dumb—has been omitted from the Spanish, but not the English version, probably because English users have the original words firmly entrenched in their memory banks. The Committee, in not changing the English version, although asterisking it, followed the rubric of incorporating inclusive language but yet paradoxically 'respect[ing] the language of traditional hymns' (Young 1993:131). In contrast, its Spanish speakers did not have the hymn's original words implanted in their minds. Thus the discrepancy can be logically explained. The original words, very familiar words, are thus included but are optional. The whole question about whether the words are discriminatory and whether the words should be sanitized, especially the word *dumb*, depends upon one's perspective. The underlying biblical text does use the words in the apocalyptic vision of Isaiah 35:5-6 (KJV):

> 5: Then the eyes of the *blind* shall be opened, and the ears of the
> *deaf* shall be unstopped.
> 6: Then shall the *lame* man leap as an hart, and the tongue of the
> *dumb* sing.

To this researcher, the original words produce a good emotive response in the listener for *blind*, *deaf*, and *lame*. It is true, now, however, that many young speakers are unacquainted with the sense of *dumb* as 'mute'. The Committee could have used a symbol after *dumb*, the most offensively politically correct word, and stated that in older uses of the language the word did not mean 'stupid' but 'speechless'. However, the Committee's decision to incorporate the verse, but with hesitation, as indicated by the asterisk preceding the verse, probably avoided disgruntled outcries by the rank and file.

Another indication of not disrupting the memory bank of its constituents by use of an asterisk is the familiar and set phrase *goodwill to men* in 'It Came Upon the Midnight Clear' (#218), where the asterisked footnote indicates *all* may substitute for *men*. The asterisk indicates inclusiveness, but also is a semiotic recognition of the popular phrase from the Christmas story of the message of the angelic heralds. To this investigator, *all* is more inclusive, but as a substantive, it cannot replace the power which comes from a real noun—in this case, *men* . Thus, the asterisk by at least giving a semiotic message of today's usage change preserves the power of the phrase, but rightly recognizes that inclusiveness is the intent of the words.

In other cases, however, problems are caused by asterisked options. In attempting to be inclusive, the options cited are either 1) not thorough or consistent enough for the whole hymn or 2) do not preserve the valid original content or emotive power of the original phrasing.

'Rise Up, O Men of God' (#576) illustrates the first problem. The asterisk at first seems auspicious in suggesting that *ye saints* may be substituted for *O men*. However, gender references are not fixed for the whole hymn: e.g., references to *brotherhood* in verse 2 or *brothers of the son of man* in v. 4. Moreover, verse 3 refers to the Church as *her*, in 'The church for you doth wait/*her* strength unequal to *her* task;/rise up and make *her* great!' where reference to the church as feminine is offensive to some feminists, because the female is pictured as weak or passive and needing rescue by males (Young 1993:570). But the one asterisked suggestion at least points out that the church is trying to use more inclusive language.

Other hymns illustrate the second problem—change of meaning in content and emotive power. For example, for 'Let There Be Peace on Earth' (#431) an asterisk at the bottom of the page indicates that the original words were

'With God as our *Father, brothers* all are we./Let me walk with my *brother* in perfect harmony'; in comparison, the new text printed as the text for the hymnal now reads 'With God our *creator, children* all are we./Let us walk with *each other* in perfect harmony.' Probably the older words were indicated at the bottom of the page, because some people would find this familiar popular song strange in this particular section of the song. At least the older version is acknowledged by the asterisk. However, the substitution of *children* and *each other* for *brother* does not convey the same meaning of relatedness, the horizontal relationship of the human race as members of the same family. What is emphasized is that we are created by a creator. Moreover, with the removal of *Father, creator* does not convey the sense of a loving parent.

The substitution of *neighbor* for *all men*, suggested by an asterisk, in 'Love Came Down at Christmas' (#242), may also create an unintended meaning. Just as *dumb* is a problem in the discussion earlier, because it now means 'stupid', *neighbor* does not convey the sense of 'all human beings' despite the story of the Good Samaritan, where even one from an alien culture can be conceived as one's neighbor. Instead, many people think of the customary definition for *neighbor* 'one who lives nearby'.

Likewise, the asterisked suggested substitution of *martyrs* for *fathers* in 'Faith of Our Fathers' (#710) creates a problem, because the original words of the first stanza do not necessarily entail a guaranteed death: 'Faith of our fathers, living still, in spite of dungeon, fire and sword.' For example, one can envision our spiritual forebears resisting authorities and exercising their faith in catacombs. In addition, the ending words of the refrain 'We will be true to the till death' does not necessarily mean that loyalty inevitably causes death. Nor would a more generic word, such as *ancestors* or *forebears*, be appropriate for emotive connotation. This investigator thinks that one possibility of redemption for more inclusive language would have been the substitution of *mothers* in one or two out of the three verses of the hymn. (In my youth, on Mother's Day, the church I attended did substitute *mothers* for *fathers* in this hymn.)

Rewriting for 'The Church's One Foundation' (#s 545 and 546) is more radical. The old conservative text is on the left-hand side of the page, preserving the bride-of-Christ metaphor for the church. The right-hand side eliminates any reference to the church as *she* not only by changing the point of view through changing the third-person feminine pronoun to a first-person plural pronoun (e.g., *she* to *we*, *her* to *us*, and *her* to *our*), but rewriting parts of the first and second verses ingeniously. Although this investigator thinks that the original biblical image should be preserved, he thinks the rewritten parts in verse 1 which not only change pronouns but also have a different content emphasis are praiseworthy. For example, the latter part of verse one changes from Christ's sacrificial act for the church to the role of servanthood given to the church from the sacrificial act. 'From heaven he came and sought *her* to be his *holy bride* ;/with his own blood he bought *her*, and for *her* life he died' becomes in the parallel version 'from heaven he came and sought *us* /that we might ever be/his *living servant* *people*, by his own death set free.' Servanthood, also a laudable biblical concept, is stressed in the rewritten version. On the other hand, in the latter part of verse 2, the rewriting deftly keeps major ideas, while at the same time eliminating feminine reference. The lines 'one holy name she blesses, partakes one holy food,/and to one hope *she* presses, with every grace endued' becomes 'One holy name professing and at one table fed,/to one hope always pressing, by Christ's own Spirit led.' The revised version keeps the major ideas of praise, the communion meal, thrusting forth to attain the goal, and the gracious undergirding of deity in its rewording and restructuring of sentences.

Thus although many churches do not use the edited version and this investigator does not think biblical imagery should be substituted, no one can deny the ingenuity shown in the rewriting.

Also laudable are attempts to illustrate the ethnic diversity of the church: that its body is worldwide, including not only traditional Western Europeans, such as German and French, but also Hispanic, Native American, and Asian-speaking people. (African-American spirituals are now included.) The hymnal makes prominent the contributions of these non-traditional groups not only by printing the musical notes of nontraditional hymns, but also by printing at times the hymns in the foreign languages together with the English words. This display of foreign words as an alternative to the English is probably just symbolic rather than a real expectation that church members will sing the non-English words. There is inconsistency, however, in treating each ethnic language with the same prominence.

The Hispanic contributions are especially made prominent, not only in terms of number, but also in terms of the hymnal's printing the original Hispanic words of each verse and making them prominent. The Spanish titles of these hymns are first printed in bold dark letters. Then under the Spanish titles is printed the English-translated titles in smaller letters (if they are translated at all). The words first to appear are the Spanish verses of the hymn. Only after all the Spanish verses do the English words appear. The English words are not interlined between the Spanish verses, making the Spanish verses more prominent. Although the total effect is that the normal user of the hymnal—an English speaker—finds it more difficult to sing the hymns because the English words are placed further away from the soprano line—the melody lines—the semiotic message which the placement of the words convey is emphasis of the Hispanic contribution to hymnology. Moreover, the Hispanic hymns can be found for different seasons of the church year—Advent, Lent, Easter, and Pentecost—and for other occasions and purposes: e.g. birth and baptism, mission, repentance, and the eucharist. In addition, the music often gives a Hispanic rhythm, emphasizing a nontraditional white ethnic group.

In comparison to other ethnic groups, probably more Hispanic hymns have been included and treated with more prominence than any other ethnic group because of the great number of Hispanics in the Methodist Church, especially in the Southwest. The 15 Spanish hymns include ' Canta, Débora, Canta!' ('Sing, Deborah, Sing!'), 'La Palabra Del Señor Es Recta' ('Righteous and Just Is the Word of Our Lord'), 'Cantemos al Señor' ('Let's Sing unto the Lord!'), 'Tú Has Venido a la Orilla' ('Lord, You Have Come to the Lakeshore'), 'Jesús Es Mi Rey Soberano' ('O Jesus, My King and My Sovereign'), 'Toda la Tierra' ('All Earth Is Waiting'), 'Niño Lindo' ('Child So Lovely'), 'En el Frío Invernal' ('Cold December Flies Away'), 'De Tierra Lejana Venimos' ('From a Distant Home'), 'Mantos y Palmas' ('Filled with Excitement'), 'Camina Pueblo de Dios' ('Walk On, O People of God'), 'Cristo Vive' ('Christ Is Risen'), 'Pues Si Vivimos' ('When We Are Living'), 'Sois la Semilla' ('You Are the Seed'), and 'Una Espiga' ('Sheaves of Summer').

Such full treatment is also given to one native-American hymn, 'Daw-Kee, Aim Daw-Tsi-Taw' ('Great Spirit, Now I Pray'), which, however has only one verse.

In contrast, other ethnic hymns either have a token recognition either by printing only the first verse in the ethnic language. Unlike the Spanish hymns, the title is not cited in the ethnic language. For example, this description fits these hymns: 'Here, O Lord, Your Servants Gather' from the Japanese, and 'For the Bread Which You have Broken' and 'The Bread of Life for All Is Broken' from the Chinese. Besides the citation of the original foreign words to the first verses only, their melodies do sound exotically oriental and do highlight ethnic diversity.

This description of an exotic melody line is also true of the Hindi 'Jaya Ho' ('Victory Hymn'), except that its title, reflecting the initial refrain which starts the song, is in Hindi, but the verses are in English. Similar to 'Jaya Ho' is Pakistani 'Saranam, Saranam' ('Refuge'), where one element of the refrain is cited in the foreign language; however, there is no other word translated in Pakistani for the whole hymn. In these hymns, then, unlike the Hispanic ones, there is some citation of a word or some words—but not the words of the entire hymn—to display ethnic origin.

At times the words are English as for a native North-American-Indian carol, 'Twas in the Moon of Wintertime' (except for the phrase Gitchi Manitou 'Great God'), but the English words themselves show the native interpretation and life of a different culture. For example, concerning the birth of the Christ child, this French-Canadian native-Indian hymn describes the circumstance of the young babe as follows: 'Within a lodge of broken bark the tender babe was found;/a ragged robe of rabbit skin enwrapped his beauty round'; and 'the chiefs from far before him knelt with gifts of fox and beaver pelt' (#244).

Still yet, at other times, the words do not display a different culture, but the tunes sound different and convey a foreign influence. This situation is true of hymns like the Nigerian Yoruba 'Jesus, We Want to Meet', the Liberian 'Come, Let Us Eat', the Laotian Come All of You', the Native-American Dakotan 'Many and Great, O God', and 'The Lord's Prayer' with a West-Indian calypso beat and with a call-and-response pattern of 'Hallowed a be thy name' sung by the congregation. There are no foreign morphemes (except for the morpheme a after hallowed in the last example) cited for these hymns.

One symbolic attempt is made to show the meeting of widely different cultures, however, for the familiar Sunday-school song 'Jesus Loves Me.' After the English version of three verses and the refrain, the first verse and the refrain only are translated in Cherokee, German, Japanese, and Spanish.

Although there is much inconsistency in the treatment of inclusive language, seen in the attempts to make language more sensitive to modern standards of inclusiveness and to make language display the ethnic diversity of the faith, the options display the struggle within the Hymnal Revision Committee to be more inclusive to all. The results in allowing options clearly show sensitive subjects which cannot be resolved by the church at the present, but which at least shows the church's willingness to engage in dialogue and struggle with inclusive language. The surface invitation to sing hymns in the original native words is probably not a gesture meant to be literally carried out but a symbolic gesture displaying the wide diversity and universality of the members of the church. This inference can be made from the fact that only for Hispanic hymns are the words fully quoted for the title, all verses, and the refrain, because of the large number of its Hispanic membership. The disparity in consistency in all cases of treatment is thus pragmatic but also displays a symbolic attempt to tackle the question of inclusiveness.

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SERIAL VERSUS PARALLEL PROCESSING: THE STATUS OF MINIMAL ATTACHMENT

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1. PARSING. Over the last two decades the investigation of syntactic parsing has assumed a central role within the psycholinguistic study of sentence comprehension. Parsing is assumed to involve both the identification of lexical items and the construction of a syntactic representation for each sentence being processed, namely a *parse* of that sentence (e.g., Kimball 1973; Frazier 1978, 1985; Mitchell 1994). Central to this approach is the requirement that each such parse must satisfy the rules of the language, and accordingly it is crucial that a syntactic theory be available to provide appropriate target structures. Currently, most parsing theorists adopt some version of X-bar syntax which also satisfies, e.g., the projection principle, (e.g., Chomsky & Lasnik 1992). In practice, however, parsing proposals tend to focus on more general structural properties such as appropriate attachment of constituents in surface structures

The vast majority of parsing proposals have assumed a *serial processing model* of comprehension such that for each sentence being parsed, one unique structure is first attempted and, if successful, it is treated as correct. According to this view, an ambiguous sentence is first assigned one structure and only if that structure does not satisfy the rules of the language or is contextually inappropriate, etc., does the parser discard it and assign a second structure. Serial processing is implicit in Kimball's (1973) approach and has been central in the work of Frazier (e.g., 1978, 1985), Frazier and Fodor (1978), Fodor (e.g., 1978, 1988), and others. Recently, however, parallel processing models have been proposed (e.g., Gorrell 1989).

The purpose of the present paper is to offer a further contribution to the growing body of evidence that a parallel processing description is to be preferred over serial models, and at the same time to argue that one of the most influential parsing strategies in the literature, minimal attachment (MA), must be rejected. To build the argument, several issues must be addressed. First, the MA principle will be discussed, along with putative supporting evidence from both written and oral language experiments. Then an alternative explanation is explored in which it is proposed that *syntactic templates* are activated in comprehension. The nature of such templates will be discussed, and it will be concluded that this approach provides a more fruitful approach to sentence comprehension than does parsing.

2. MINIMAL ATTACHMENT. Frazier's (1978) minimal attachment principle can be formulated as follows:

> 'Attach incoming material into the phrase marker being constructed, using the fewest nodes consistent with the well-formedness rules of the language under consideration.' (Frazier 1978: 24)

MA has enjoyed considerable success in the parsing literature. For example, it appears to account for assignment of the NP as the direct object in (1a), and the PP as the obligatory locative phrase required by *placed* in (1b):

1a. The spy [$_{VP}$ [$_{V'}$ watched [$_{NP}$ the cop]]].
b. The spy [$_{VP}$ [$_{V'}$ placed [$_{NP}$ the telescope] [$_{PP}$ on the railing]].

To operate properly, MA must access the lexical information that *watch* takes a NP complement, while *place* requires both a direct object NP and a locative argument. Current X-bar theory, including the projection principle, requires that a particular head, in this case a verb, has its complements entered in the lexicon as:

2a. *watch*, V, /[$_{V'}$ __ NP]
b. *place*, V, /[$_{V'}$ __ NP PP$_{loc}$]

Since in X-bar theory complements are specified under the domination of X' rather than XP, MA initially parses an ambiguous sentence like (3a) with the PP as an adjunct, a sister to the V' node. Then the parser may reassign the PP as a complement to the object NP only if necessary, as in (3b).

3a. The spy [$_{VP}$ [$_{V'}$ watched [$_{NP}$ the cop]] [$_{PP}$ with binoculars]].
b. The spy [$_{VP}$ [$_{V'}$ watched [$_{NP}$ [$_{NP}$ the cop] [$_{PP}$ with binoculars]]]].

MA is supported to the extent that it assigns the appropriate structures in cases like these and its plausibility is further enhanced by its treatment of garden-path structures. For example, in sentences such as:

4a. The horse raced past the barn and fell.
b. The horse raced past the barn fell.

the assignment of *raced* as the main verb in (4a) is the only assignment possible. In (4b), however, as has been recognized at least since the work of Bever (1970), the hearer is 'garden-pathed' to an interpretation paralleling that of (4a), but when the final verb *fell* is encountered, a reinterpretation of the sentence is required to analyze *raced past the barn* as a reduced relative clause as in:

4c. The horse which was raced past the barn fell.

Recognition of the garden path phenomenon ushered in a important methodology in the study of parsing, namely the use of structures which are temporarily or *locally ambiguous*. In fact, the majority of research dealing with the function of MA over the past several years has focused on sentences containing local ambiguity, such as the sentences in (5), where the mark '|' indicates a point at which the ambiguity resolution begins.

5a. We all knew Fred | well
b. We all knew Fred | left.

In sentences such as these, MA will initially assign the NP *Fred* the structure of direct object of *know* and, if no problems ensue, that parse is allowed to stand. If, however, something goes wrong, the sentence must be re-parsed. For example, when *left* appears in (5b), the initial analysis fails and a re-parsing is necessary to give *knew* a sentential complement (a CP), with the NP *Fred* as the subject. Similarly, for sentences such as those in (6), MA assigns the NP after *expected* as a direct object as in (6a), but this analysis must be revised in (6b).

6a. Sue expected the package by closing time.
b. Sue expected the package to be heavier.

From these examples and many others cited in the literature (see Mitchell 1994 for a useful review), it appears that not only does MA provide the correct assignments in a large number of cases, but it also accounts for those garden path phenomena involving the incorrect initial assignment of a constituent, cases which cause the reader or hearer to backtrack and revise the analysis when the local ambiguity is passed.

Extensive experimental evidence bearing on MA is also available, primarily from studies dealing with written language, although some also have dealt with the oral language. The dominant methodology for the study of on-line parsing of written language has been the eye-movement technique (e.g., Rayner & Sereno 1994) which involves the monitoring of one eye while the subject reads a text, usually presented on a CRT. With this technique it is possible to determine where in a text there is fixation and from what point the subject needs to regress and reread. In examining cases of local ambiguity such as found in sentences like (5) above, Frazier and Rayner (1982) found a significantly longer fixation on *left* than on *well*, a result which they interpreted as resulting from MA assigning *Fred* as the object in (5b), with a later reassignment of *Fred left* as a sentential complement of *know*. Similarly, Rayner and Frazier (1987) investigated sentences such as those in (7), with and without a complementizer *that*.

7a. The clairvoyant predicted the effects of the earthquake would be quite minimal. (local ambiguity at *earthquake*)
b. The clairvoyant predicted that the effects of the earthquake would be quite minimal. (no local ambiguity).

They found a significantly longer initial fixation on *would* in (7a) than (7b), a result predicted by MA since it is at *would* in (7a) that the resolution of the local ambiguity begins. Numerous other studies have reported the same pattern of results: longer eye fixation is found in the immediately disambiguating region when MA has made the first, and incorrect, parse. In structures like (7b), the presence of the complementizer *that* does not permit of local ambiguity, and thus the sentential complement analysis is the only one permitted.

When we turn to studies of oral language, the situation is somewhat messier. Significant in oral language is the intonation contour which accompanies every phrase, an aspect represented very poorly if at all in the written modality. Thus, while a sentence might be locally ambiguous in the written form, distinct intonation contours may disambiguate the distinct readings in the oral version. For example, although sentence such as (8a, b) are locally ambiguous at *neighbors* in the written form, there is evidence that such ambiguity vanishes in the oral form.

8a. Jay believed the gossip about the neighbors right away.
b. Jay believed the gossip about the neighbors wasn't true.

Beach (1991) presented subjects with two versions of the beginning of the sentence, up to the point of local ambiguity, but in one version the final word (*neighbors*) was long, with a dramatic fall in pitch, while in the second version, the final word was short, with a sustained pitch. In a sentence completion task, subjects regularly selected (8a) as the natural completion under the first condition and (8b) under the second, providing evidence that prosody at the point of local ambiguity does serve a disambiguating function.

Finally, it should be clear that in sentences such as (9), there are indeed important prosodic differences, typically represented orthographically by the presence or absence of a comma.

9a. After Fred left, the party really picked up.
b. After Fred left the party, things really picked up.

In some written studies the comma is deliberately omitted, yielding an artificial garden path structure. But methodologically such a move strongly biases the results in the direction of local ambiguity since without the comma the NP would be treated as the object of *left*. Written studies which omit the requisite comma force subjects into highly unnatural orthographic conditions and as a consequence their results must be treated with considerable caution, if not outright skepticism.

On sum, however, there appears to be a considerable body of empirical evidence supporting some version of MA, at least for those cases where prosody does not militate automatically in favor of one or another analysis, with the most compelling supportive evidence deriving from studies of the written language. Yet, an alternative explanation is available.

3. TEMPLATE ACTIVATION. Underlying MA is the assumption that parsing is a serial process. Yet there is compelling reason to believe that parallel processing must take place in comprehension. First, in comprehension several processes can take place at the same time (i.e., in parallel) since processing resources can be shifted and directed to where the need is greatest. For example, it is commonly recognized that in normal language comprehension, relatively little conscious attention is paid to syntax *per se*. Seldom do we recall the exact form of any sentence (unless, of course, it is a set formula or, e.g., the punch line of a joke). Instead we recall 'gist' and when asked what we just said, we tend to paraphrase, not parrot back the same sentence. From this point of view, then, it appears that the syntax is highly automated, as is phonology. However, when the syntax or phonology is placed under severe stress, such as when we hear someone speaking with an unfamiliar accent or in highly convoluted sentences, we are forced to shift resources to the phonology or the syntax, and in the process lose track of the meaning. Anyone who has listened to a written lecture read aloud will readily recognize this phenomenon

But what does it mean to say that the syntax is highly automated? One way to begin to answer this question is to consider the possibility that rather than constructing a syntactic parse, the hearer instead activates *syntactic templates* drawn from the available syntactic arsenal. Given recursion in natural language, such structures are potentially unlimited in number. Nevertheless, there is one way to get at such templates and that is by projection from the lexicon, much in the manner suggested by X-bar theory. In fact, one of the central claims of 'principles and parameters' theory is that lexical representations contain not only idiosyncratic semantic and morphological material, but also a specification of the argument structures associated with the lexical items (e.g., Chomsky & Lasnik 1992). Such a claim means that the lexical representation for a verb, for example, contains a specification of the complements it may take, specifically those that may be its sisters under the domination of V'. Under this view, part of the lexical entry for *watch* is that it takes a NP complement, while *place* takes both a NP object and a locative argument, typically a PP, more or less along the lines represented in (2) above.

If we adopt this view, then a verb like *know* takes as complements either a NP object or a sentential complement (a CP), as in sentences such as (6a, b). From this perspective we can view the syntactic representation of a sentence in comprehension as the activation of an appropriate syntactic structure, a *syntactic template*, available from the lexicon, rather than as parsing. Suppose we are processing mindlessly simple sentences such as:

10a. Sue watched the game.
b. Sue watched the game with excitement.

When *watch* is encountered, its subcategorizational property (e.g., __NP) is also activated, providing the template into which the NP *the game* may be fitted. However, in (10b), the PP *with excitement* is not a sister of *the game* since a PP is not an argument of *watch*. Instead, the PP assumes the status of an adjunct, specified by X-bar theory as outside the local domain of V'.

Suppose we next tackle a case of *local ambiguity*, such as (6) above, repeated here as (11):

11a. We all knew Fred | well
b. We all knew Fred | left.

According to template model, when *know* is encountered both of its complement options, __NP and __CP, are activated. That is, two templates are available, one like (12a) and one like (12b):

12a. [$_{V'}$ *know* __ NP]
b. [$_{V'}$ *know* __ CP].

The crucial question at this point is which template is actually selected, and on the basis of what criteria. Following our lexical analogy, one answer is that the two templates are differentially weighted or biased, with one more typical than the other, perhaps as a function of the two different meanings of the verb or, perhaps equivalently, because of their different relative frequencies. Of course, if a complementizer such as *that* is encountered, as in

11c. We all knew that Fred left.

then only one template is selected, namely (13b).

The activation of differentially weighted alternatives parallels exactly what is found in lexical access studies: for ambiguous lexical items, both meanings are activated, with the more frequent and/or the more contextually appropriate given the higher weight (Neill, Hilliard & Cooper 1988; Simpson 1984; 1994). However, just as prior context can lead toward one particular meaning in lexical access, we also expect that prior context can drive the lesser frequent alternative syntactic template toward a higher level of activation. And indeed, such results have been found in syntax. Taraban and McClelland (1988) constructed sentences semantically biased for a non MA reading, such as (13a), and found faster reading times for the non MA as in (13b).

13a. The thieves stole all the paintings in the museum while the guard slept.

b. The thieves stole all the paintings in the night while the guard slept.

That is, semantic and pragmatic factors can bias the interpretation toward the non MA analysis, just as a particular context can bias a hearer to expect the less frequent meaning of a lexically ambiguous item.

But what about inherent differential bias for the alternative complements of such verbs as *forget, know, tell,* etc.? I am aware of no studies indicating the relative frequency of, for example, the __CP complement of *forget* versus its __NP complement. There is, however, empirical evidence available about the relative bias of such verbs. Trueswell, Tanenhaus, and Kello (1993) examined the possibility that verb-specific constraints could drive alternative parses and concluded, on the basis of three independent experiments, that parsing makes use of lexically specified information. As a part of their experiments, they gathered normative data on 50 verbs to determine whether each was biased toward a NP or a CP complement. This was done by having subjects carry out a sentence completion task for the verbs. They found, for example, that *accept, advise, confirm, forget, learn, maintain, observe, recall, remember, reveal, teach, understand, warn,* and *write* were all biased toward a NP complement, *while boast, claim, decide, hint, hope, imply, insist, pretend, realize,* and *wish* were biased toward a sentential (CP) complement. Several other verbs appeared to be relatively equally balanced in their bias toward a NP or CP complement. These included *admit, assert, believe, confess, deny, doubt, feel, infer, mention, notice,* and *predict*. It thus appears that specific lexical information can be associated with which complement a given verb might take, and if so, it is plausible that the differential activation of two templates in sentences containing such verbs is highly plausible.

When our research group carried a sentence completion task to attempt to replicate these results, our results were much the same with, for example, *forget* taking a two to one bias toward the NP complement. But when we examined *know*, we found the two complements (NP and CP) equally chosen, suggesting that this verb is indeed one where both complements are equally available.

The template proposal being suggested here, unlike the MA proposal, argues that both alternative structures, appropriately weighted, are activated when a verb allowing both is encountered. The proposal finds independent motivation from two sources. First, research in lexical access suggests that all meanings of a lexical item are activated when the form is encountered, but that the incorrect meanings are rapidly discarded as frequency, contextual, semantic, and pragmatic factors are attended to. Second, X-bar theory and the projection principle provide a useful theoretical basis for the template model. The activation of a given lexical item also activates the subcategorizational complements of that item, where the principles of X-bar theory determine the overall properties of frames available (i.e., whether the head precedes the complements, whether the adjuncts follow, whether the specifier precedes or follows X', etc.). Template activation can be informally defined as follows:

> When a predicate is accessed, all its complement frames and argument structures (as defined by X-bar projection) are activated in parallel, and each carries its weighted bias.

Thus, for *forget*, *know*, and *smile*, we find the following templates, where b_i represents the weighted bias for that particular frame.

14a. $[_{V'}$ *forget* $\_\_\{\mathrm{NP}, b_1/\ \mathrm{CP}, b_2\}]\quad b_1 > b_2$

b. $[_{V'}$ *know* $\_\_\_\ \{\mathrm{NP}, b_1/\ \mathrm{CP}, b_2\}]\quad b_1 = b_2$

c. $[_{V'}$ *smile* $\_\_\_\ , b_1]\quad b_1 = 1$

One possibility arising from the present proposal is that the relative biases of the alternative templates might be reflected in the frequency of occurrence of particular structures. How realistic is such a suggestion? Do we in fact maintain some sort of actuarial record of structures, tabulating sets of relative frequencies? It appears that regardless of how frequency counts are carried out, they do have a role in lexical activation, as Simpson (1994) argues. Moreover, there is empirical evidence that the artificial manipulation of exposure to one or another type of structures will calibrate a bias for that structure. Mitchell (1994:398), for example, reports a study in which two groups of children were given a two-week period of intense reading in which one group received a large number of exposures to structures of one type while the other group had an opposite condition. At the end of the conditioning period, each group reflected a bias toward the structures represented in their group's reading, suggesting that relative frequency is a highly salient biasing agent for the activation for a frame.

The template analysis can account for all the empirical evidence adduced in support of MA, but to demonstrate the superiority of the template hypothesis, we must show that in at least one crucial case MA makes the wrong prediction about processing, while the template analysis makes the correct prediction. The data for this demonstration dates from more than two decades ago, to the results of Hakes (1972). Hakes used a phoneme monitoring task and, for example, had subjects monitor for /o/ in sentences both with and without a complementizer, as in (15).

15a. The world-famous physicist forgot that his **o**ld professor had been the first to suggest the crucial experiment to him.

b. The world-famous physicist forgot his **o**ld professor had been the first to suggest the crucial experiment to him.

(15a) is not locally ambiguous since the presence of the complementizer *that* signals uniquely that a CP follows. For (15b), there is no ambiguity at *old* and consequently MA should immediately assign *his old professor* the structure of direct object, even the more so since *forget* is has a bias toward the NP complement. Only when the area of ambiguity resolution is reached does MA predict that a reanalysis should occur. However, since Hakes found a longer reading time at *old* in (15b), MA makes precisely the wrong prediction: it should assign a direct object immediately and therefore predicts no excessive latency at *old*.

In contrast, the template analysis makes the correct prediction of a long response time in (15b). This follows because *forget* permits either an NP or a CP complement, and according to the template proposal both are activated when forget is encountered. In (15a), the presence of *that* eliminates the NP complement possibility and by the time *old* is reached, only one possibility remains, the CP complement. However, in (15b), when *old* is reached there is still a possibility that either of the complements could be correct. Both complement alternatives are activated, resulting in a longer response time. Thus, MA fails in a crucial case while the template analysis succeeds, supported by data from an experiment conducted more than two decades before the relevant hypotheses were even framed.

4. CONCLUSIONS. The template activation model not only accounts for the empirical evidence supporting MA, but in addition it accounts for empirical results where MA fails. This model offers a view of syntactic processing which differs in principle from virtually all parsing proposals. Where parsing assumes syntactic representations are assembled, the template model views the syntactic aspect of comprehension as the projection of frames from particular lexical items. The system is a parallel processor, making syntactic representations available as wholes rather than in the piecemeal manner of a parser. The model also allows for weighted alternatives among the templates associated with a given lexical item. Template activation, not parsing, accords well with a growing body of research supporting parallel processes in comprehension.

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Entities and Effort: Toward an Alternative Simplicity Metric

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0. Introduction

The vast majority of arguments in modern linguistics are founded upon two closely related principles:

(1) Given two models or theories which account for the evidence equally well, pick the simpler one.

(2) Except in cases of ambiguity, a given linguistic unit (word, sentence, etc.) has one "correct" structure.

The first principle is, of course, derived from Occam's Razor; in its pure form, it is the basis for all scientific argumentation. The second principle (which I will term the *unitary structure hypothesis*) derives from the first, inasmuch as one structure is "simpler" than two or more, and is for the most part implicit, perhaps because it is considered so basic that it does not need to be addressed. I will argue in this paper (a) that there are multiple methods by which we can validly "count" simplicity, (b) that the mind need not, and in fact in one demonstrable case *does* not, function according to the traditional notion of simplicity, although it does appear to function according to an alternate formulation, and (c) that the unitary structure hypothesis does not follow from alternate formulations of simplicity.

1. *Simplicity Measurements*

As an initial step, I will set up a number of abstract systems upon which I can base discussions of measuring simplicity. These systems (and the modes of counting simplicity) are intended to be representative of common approaches to simplicity in argumentation, rather than representative of any specific implementation; however, the discussion based upon these abstract systems, I believe, is relevant to most approaches to linguistic modelling.

The traditional way of measuring simplicity is based on the notion of primitive items and processes involving those items. We can start by considering three basic systems:

A)	Items: 3	Processes: 7
B)	Items: 4	Processes: 6
C)	Items: 10	Processes: 10

Systems *A* and *B* can be considered simpler than *C* because they each use ten elements as opposed to *C*'s twenty. Distinguishing between *A* and *B* is more problematical; if we adopt some assumptions about theoretical "expense," and assume that items are more "expensive" than processes, then *A* is simpler than *B*, with the reverse holding true if processes are deemed more costly.[1]

Why, however, would we wish to consider either processes or items more costly than the other? Extrinsic of an actual implementation of the system in question, there would be no valid reason. If the mechanical aspects of a given working system are specified, in some cases it will become clear that either items or processes entail a greater investment of resources. For example, we could postulate a device with unlimited storage capable of carrying out only a very few processes; within this framework, *B* would be clearly superior to *A* (while a device with very limited storage but great processing capacity would force the opposite decision).

These considerations are not strictly based upon "simplicity" (at least, not in terms of the traditional conception of it), however, but upon pragmatics. From the characteristics of a given implementational framework, we must decide what type of system to favor, but that decision is not theoretically motivated unless the operating characteristics of the system themselves are theoretically motivated. That is, if the implementation of the system is intended to be representational of some already existing system (e.g. a linguistic model attempting to represent how language is structured in the mind), then the operating parameters of the implementation may be exponents of a number of theoretic postulates about the existing system. Otherwise, any parameters forcing an "economy decision" can be viewed merely as mechanical accidents.[2]

As soon as we bring in the notion of implementation, however, we raise an additional problem: a system as an abstract conception merely *is* something; an implementation must *do* something. An implementation has goals and must do things to accomplish them; it is bound by time. The question then becomes not merely "How many items and processes do we need" but "How many items and processes do we need *and how many 'times' do we need to use them to accomplish Goal X.*"[3] It is this latter clause that is not a factor in most traditional notions of simplicity. The fact that a system such as *A can* accomplish a given task is the only relevant criterion; the fact that it might need to use eighteen iterations of a given process, or use a given item twenty times, is not considered jejune.

If we add some notion of "work needed to accomplish goals" to the discussion of simplicity, the set of simple decisions made above about systems *A B* and *C* becomes much more problematical. I will term each individual use of an item or operation of a process an *instantiation;* measurement of "work" can be approximated by counting instantiations, although in reality one would have examine the set of instantiations to determine if any of them should be viewed as more "expensive" than others. For purposes of discussion, I will arbitrarily recast the previous systems as follows:

	Items	Processes	Instantiations needed to perform function X
A	3	7	15
B	4	6	15
C	10	10	5

It should be immediately noted that the evaluation of such a system entails enumerating instantiations across a set of possible functions or goals. That is, the fact that *n* instantiations are needed to achieve a particular goal *x* doesn't really tell one much about the simplicity of the system as a whole if the system accomplishes more goals than simply *x*. In the example above, we can tell that the three systems may be equivalent in their achievement of goal *x* (dependent upon relative weighting of items, processes, and instantiations) but we cannot tell about, perhaps, goal *y*. To correctly evaluate competing systems, one would have to specify how many instantiations were necessary to accomplish each goal that the systems are designed to achieve and then perform an "averaging" operation to determine efficiency, a task that becomes inherently problematical if the goal-set for one system contains elements not in the goal-set of the other (e.g., the fact that it takes a lot of trouble to make french toast with the electric iron doesn't really mean electric irons are inefficient).

Including goal-directed instantiations as countable items for simplicity evaluations also enables a more complex and interesting (albeit even more problematical) situation, in which multiple concurrent systems exist, each optimized for a specific set of goals, with a "meta-system" utilizing particular subsystems based on task.[4] There are a variety of ways in which such a "polysystem" could be constituted. The most familiar is the modular approach currently in fashion in many branches of Generative grammar, in which the subsystems are primarily distinguished on the basis of linguistic specialization. Thus, one could have a subsystem optimized for producing phrases, or one for moving things. This type of system is almost exclusively goal-differentiated; that is, a particular module never performs functions similar to another module. Alternatively, or additionally, one could divide subsystems based on pragmatic issues of performance, e.g. interpretation vs. production. This type of system might or might not be goal-differentiated to the extent that "modules" are, depending on the exact constitution of the theory being used. For example, creating an abstract noun phrase structure might, in a particular theory, be a valid goal for both production and interpretation components, or one might want two different phonological output components, one for careful speech and the other for "slurvian" (cf. Hockett, 1987).

Although widening the scope of "simplicity" by including even so rough a measurement as goal-directed instantiations makes the task of evaluating systems much more complex, there are a number of reasons why such an alternative formulation should be considered. Most importantly, there is no *a priori* way to *exclude* some notion of "work" from simplicity measurements. The notion of theoretical simplicity rests on a number of reasonable assumptions about how systems work and what complexity is; the notion that "less effort" is as much related to "more simple" as "fewer building blocks" is, I believe, reasonable. We must not multiply entities beyond need, but iterations can be considered entities, and our decisions about which classes of entities are to be considered more costly than others can only be based upon pragmatic considerations. Moreover, the reformulation would act to reinforce consciousness of assumptions which otherwise might go mistakenly unchallenged; it is, in fact, too easy to forget that simplicity is a form of aesthetic judgment, with all of the problems that entails. Finally, if a linguistic model is intended to represent actual language processing, "work" is directly relevant.

The consequences of considering "work" in simplicity measurements are considerable; in particular, the unitary structure hypothesis need not yield maximal simplicity under work-based reformulations. Before discussing the issue in detail, I would first like to establish that the argument is not merely abstract, that it pertains to issues of relevance to linguistic modelling. Since a linguistic model must at some level claim to be representative of the way language is structured in the mind to have any value as a *causal* explanation, if it can be established that in any case the way the mind deals with language is sensitive to "work" or "effort" considerations, then the claim that "work" measurements are potentially valid components of simplicity metrics is validated.[5] There are data from cognitive psychological studies of the mental lexicon that, I believe, are sufficient to establish the point.

3. Dual Modes of Representation in the Lexicon.

The existence of morphologically complex words has long presented those devising models of the mental lexicon with a problem: should complex words be represented as unitary, separate entries, or should they be represented as broken into their separate parts, to be "assembled" at need? The first (unitary) technique simplifies processing enormously, at the expense of expanding the amount of storage required (equally enormously). The second (decompositional) technique has a mirror effect: needed storage is dramatically reduced, but required processing capacity is expanded. At first glance, this may appear to be paradigm example of the first "System *A* vs. System *B*" discussion in the previous section, but it is not. In terms of *primitive* processes, the unitary technique requires a "retrieve item" process while the decompositional technique may be done using "retrieve item" plus an "assemble item" process. The primary difference lies not in primitives but in *work*: the "assemble item" process may need to be iterated a number of times for a particular morphologically complex word, and in particular implementations there may be a need for a number of different types of assembly processes.

There is an extensive body of literature on this debate in cognitive psychology, and the results have direct bearing on the simplicity issue. The material to follow is in part simply a historical overview of the issue. As will be seen, psychologists arrived at a position similar to that of most theoretical morphologists, although the two groups were, for the most part, working rather separately. The primary point is that both groups arrived at a solution that achieved flexibility at the expense of simplicity computed by traditional means.[6]

If morphologically complex words are stored in decomposed forms, one should expect to observe two different phenomena:

(1) Processing time for lexical items should be sensitive to the derivational complexity of the item.

(2) Errors involving unit transpositions (as in slips of the tongue) should be sensitive to morphemic structure.

The unitary storage position would be supported simply by the failure of these predictions — it is, in effect, the "null hypothesis" in the debate. Prediction (2) was supported by MacKay (1979), who found that in a collected corpus of German slips of the tongue transposed units were frequently inflectional and derivational morphemes. Prediction (1) proved to be more problematical, however.

Many studies appeared to unambiguously support prediction (1). MacKay (1976,1978) found that when subjects were given tasks in which they actively derived items, that the time needed to accomplish the task was, in fact, influenced by derivational complexity. Jarvella and Snodgrass (1974), in a task not requiring active derivation, determined that subjects were able to make comparisons involving regularly related items (e.g. *talk* vs. *talked)* faster than irregularly related ones (e.g. *sing* vs. *sang*), a result that also supported the decompositionalist position (although the results could have also been explained by an ease-of-visual-comparison argument). Taft and Forster (1975) and Taft (1979) found that there were processing-time differences on tasks involving verification of stems and affixes, differences that should not have occurred if storage was unitary.[7] Smith and Sterling (1982) found that in letter-cancellation tasks, subjects "miss" more letters in prefixes than in roots, again indicating a difference between the classes of morphemes that should not exist given unitary storage.

However, Kintsch (1974), using tasks not requiring active derivation, found no processing time differences related to derivational complexity. Manelis and Tharp (1977) and Holyoak, Glass, and Mah (1976) found that subjects had to spend significantly more time in root-identification tasks, which should not have happened if words were *automatically* decomposed. The net results of the studies appeared to indicate that derivational complexity was an issue during active derivation tasks but not necessarily during "basic access" tasks (a finding not in keeping with the pure form of either the unitary or the decompositionalist positions).

There were other indications that whatever storage system was actually being used did not conform exactly to the predictions of either position. Stanners, Neiser, and Painton (1979) and Henderson (1985) found that different types of morphemically complex words were treated differently: free-morpheme stems appeared to have decompositional storage at some level while bound-morpheme stems did not. There is also the very basic problem of representational *change*.

Speakers consciously learn, in some cases quite late in life, that certain common words are made up of multiple parts; the fact that they can learn this supports the decompositionalist position while the fact that frequently the discovery comes as a surprise at least partially supports the unitarist position. Freyd and Baron (1982), in a study of this topic, found that decomposition of items is learned and varies across populations.

The available evidence thus appeared to support *both* positions in part, and therefore supported neither position in its pure form. As a reaction to this, models were developed incorporating both types of representation (cf. Cole, Beauvillain, and Segui (1989), Tyler, Komisarjevsky, Marslen-Wilson, Rentoul, and Hanney (1988)). For simple word-recognition, unitary storage appears favored, while decompositional storage is available for word-formation and comparison tasks.

Again, this result is mirrored in mainstream theoretical morphology; Aronoff (1976) proposed a morphological model with both a body of words and rules for forming new ones, so that complex items could be formed but were also stored unitarily. Most morphologists use equivalently flexible systems (cf. Spencer 1991).

If the mental lexicon does, in fact, provide both for unitary and decompositional representation, what are the ramifications for the discussion of simplicity? First, of course, it is obvious that having *both* systems available is not in keeping with the traditional notion of simplicity at all; in fact, it is almost crassly messy. Although decomposed storage is arguably logically necessary to explain speakers' ability to derive new words, unitary storage is not equivalently logically necessary.[8] We can, if we wish, consider the dual representational modes as simply being a single system constituted by a greater number of primitives (e.g. both decomposed and nondecomposed forms) and processes (both unitary and assembled access rules), but we could also allow the possibility of multiple separate systems (the "polysystemic" approach discussed in section 1). Dual representation does, however, provide a degree of flexibility that allows the minimum amount of effort necessary to be expended. If active derivation is not needed for the task at hand, unitary storage obviates the necessity for it; if active derivation is needed, decompositional storage allows for simple assembly rather than analysis plus assembly. Lexical organization, at least in terms of the storage of morphologically complex items in English, thus does appear to be sensitive to work-considerations.

One could, of course, at this point argue (A) that Occam's Razor demands that entities not be multiplied *without reason*, (B) that the experimental evidence constitutes just such a reason, and (C) that therefore the evidence does not justify abandoning traditional notions of simplicity. However, this is countered by the previous arguments that (A) there is no principled basis to exclude "work" as a valid component of simplicity and that (B) to be explanatory, linguistic models must claim to be representative of the way language is structured in the mind. In terms of lexical storage, the mind *does* appear to be work-sensitive; the experimental evidence from psychology is as close as we are likely to come to empirical validation of this assertion, at least given current methodologies. Therefore the inclusion of work-considerations in simplicity metrics is justified. Again, the evidence cannot be used to argue that work-considerations must be *included*; they are sufficient to establish that they cannot be *excluded*.

4. Ramifications

In section 3 it was argued that a morphologically complex word may be said to "have" two different structures, and that the basis for this derived from considerations of the functional operation of the lexicon. Again, this is not a novel idea; morphologists have been using dual-encoding models for years, although perhaps the exact relation between the pragmatics of the solution and the definition of simplicity have not been addressed fully. This dual-structure approach decreases, on average, the amount of effort needed to accomplish a given task (i.e. the different structures are task-optimized, and iterations of processes are decreased) but increases the number of basic items and processes needed by the system. The functional advantage of the method cannot be recognized without taking the actual operation of the system into account: it is only in the sense that the system *accomplishes a given task* with fewer resources (including the resource of time) that it is advantageous. In short, it appears that in terms of lexical behavior, storage is "cheap" and processing time is "expensive" so that primitives are multiplied to save time. Although we could say that this is a case of simplicity yielding to pragmatics, I would argue that it is more correctly the application of a different form of simplicity.

The question now arises of whether a generalization can be made. That is, can we then assume that other, perhaps all, linguistic units may have multiple structures as a result of task-optimization?[9] Simply as a concept, it is fascinating although disquieting: a large proportion of linguistic argumentation to this date is of the form "Which of these possible structures is the correct one?" and accepting multiple correct answers would, essentially, invalidate (or at least relativize) most of this argumentation. Intuition (as well as experience) would suggest that any blanket statement will probably prove false; that is, probably not *all* linguistic units have multiple structures, but *some* do. The relevant criterion to consider is whether or not an argument can be made in each particular case for multistructuralism producing some type of benefit. In the case of lexical storage, there is a clear payoff for multistructural representation; this may or may not be the case for other areas of linguistic processing.

As a test case, we can consider basic syntactic schema. It has long been accepted that sentences are to be divided into subject and predicate; S -> NP VP. The inclusion of the verb and object (if present) within a single constituent has clearly useful implications in regards to accounting for object-selection and subcategorization phenomena. There are also, of course, phenomena linking the *subject* and the verb, most notably agreement, but given the choice of whether to group the verb with the subject or the object, the object-grouping has the most benefits. However, if we allow for multistructuralism, *both* options can be taken: S (VO) and (SV) O. Object selection phenomena can be accounted for via the first schema, while subject-object agreement can use the second.[10] If it is assumed that it is easier to compare features within a single constituent than across constituents (that is, between daughters of the same node rather than "jumping" nodes), then an argument can be made for the multistructural interpretation having theoretical benefits.

5. Conclusions

The preceding arguments have been in the form of a "thought experiment" — sacrificing a certain degree of concreteness for a potentially productive game of "what if". Although this methodology is clearly not sufficient to establish that a particular point (in this case the existence of multistructuralism) *is* true, it is useful for establishing that the point *may reasonably* be true, and that its truth (or falsity) is a matter of valid theoretical interest. In any field of endeavor, it is useful to focus on underlying assumptions and question them; most often, the original assumptions will be found to still be the most useful ones, but occasionally a change may prove to open new avenues of investigation. If, for the sake of argument or simply out of a spirit of experimentation, we abandon the unitary structure hypothesis, it is clear that any grammar we construct will be of a fundamentally different form. In fact, the differences may preclude any objective means of comparison with more traditional grammars.

Notes

1. In this type of framework, an "item-and-arrangement" grammar has a relatively large number of primitive items (formatives and tagmemes), but generally one basic process ("fill slot"). Item-and-process grammars reduce the number of primitive items by adding a greater number of processes, as in modern Generative theory ("add element", "subtract element", and "move element").

2. See also Chomsky (1965.37-42) for a discussion of the empirical consequences of specific simplicity criteria within theories based on common assumption-sets.

3. I am assuming here, of course, that a given process will take a finite amount of time. Although it is possible to model systems in which processes are instantaneous, there is no evidence that the human language system operates instantaneously.

4. Two points may need to be clarified here:

(A) By saying that considering goal-directed instantiations "enables" multiple concurrent systems models, I mean that evaluation of the number of instantiations needed across the set of goals can be done for the "polysystem" as a whole, thus rendering it evaluable. If only items and processes are evaluated, and different subsystems have different sets of items and processes, there is no substrate by which to connect them; one can say that a particular subsystem is simpler than another, but not that one polysystem is simpler than another, or simpler than a "unisystem." By using the term "subsystem" or "module" one implies that the system in question is part of a larger whole; for linguistic modelling, this implication is based upon a functional definition: language modules (if one's theory uses them) belong in one polysystem because they are all used to perform language functions.

(B) In terms of the formal mathematics of simplicity evaluation, there may or may not be a relevant difference between the "unisystemic" and "polysystemic" models; however, the distinction has importance for explanatory linguistic modelling, since a polysystemic approach allows for important functional differences between subsystems. The added complexity results from the fact that "weighting" decisions in a polysystemic model must also take into account the individual subsystems — one could opt to view certain subsystems as more important than others. In addition, once "work" is taken into account, it might be found that a polysystemic approach, in a particular implementation, has superior efficiency to a unisystemic one.

5. Two different points may require clarification here.

(A) By stating that linguistic models must represent the structure of language in the mind at some level to be causally explanatory, I may have begged a number of questions. I am assuming that the goal of the linguist is, in some sense, to "figure out how language actually works." I am thus operating fully within the "God's Truth" rather than the "Hocus Pocus" paradigms. If we do not link our linguistic models to some conception of the way the mind works, we are not "figuring out how language actually works" but rather "figuring out how we can make our model maintain the right input-output relations." The second pursuit is by no means valueless (computational linguistics is founded on it!) but we could fashion an infinite number of models with the right input-output relations and not approach any degree of representation of reality.

(B) I am not arguing that traditional methods of counting simplicity are "wrong"; rather, I'm arguing that alternative methods may be "right". This is logically a much simpler task and requires less proof. It is, of course, possible that some sort of "linguistic processing event" could be shown to be work-sensitive but still not relevant to a *particular* linguistic model. For example, if the model purports only to represent the system that constructs the grammar, rather than the system that uses the grammar, the work-sensitivity of the event would not constitute a relevant datum for the model's mode of counting simplicity. My goal, however, is not to prove that all linguistic models *must* take work-considerations into account; rather it is to argue that there is no basis upon which to consider "incorrect" those that *do*. I am thus arguing for a form of "linguistic model relativism" and demonstrating that some language-related mental events are work-sensitive is sufficient for this limited task.

6. The question may arise at this juncture of why "experimental" evidence should be introduced in detail, while morphologists have for years adopted the position to be described; i.e. that a reference to basic morphological theory would be enough to establish the relevant points. My goal is not simply to argue that a given solution to the representation problem is the best one, but to argue that there is evidence that the mind itself operates in a way leading to that solution. I could assume, as is

commonly done, that the traditional type of argumentation used in morphology must produce results in some way congruent to actual mental organization. In other words, linguists frequently, either implicitly or explicitly, assume that the mind must tend towards maximal simplicity, so that a movement towards such simplicity in theoretical argumentation will produce results more representative of the actual structure of the mind. However, since I am questioning the traditional definitions of simplicity upon which the "argument —> reality" linkage is usually constituted, I felt it necessary to use some form of "outside" validation.

7. Taft's experiments actually involve a model based on what he terms "Basic Orthographic Syllable Structure" — the model involves only processing of written words, and utilizes "orthographic syllables," which in some cases do not correspond to morphemes. However, *any* result showing that different parts of words are treated differently supports the assertion that the words really are made up of multiple parts, rather than being stored as units.

8. In other words, a decompositional storage mode can do everything a unitary storage mode can do, but not vice versa. The only real problem for decompositional storage, from an abstract point of view, is that it cannot deal with what happens when a native speaker *learns* that a particular word is made up of parts. However, if one were really just trying to achieve maximal simplicity using the traditional counting method, one would, in such a situation, simply erase the original unitary storage —thus eliminating a primitive. That apparently doesn't happen; the dual storage approach pays off in terms of processing time.

9. It should be emphasized that what is meant by "multiple structures" is not the more familiar idea of having different representations at different *levels* of a grammar (e.g. a syntactic structure at one level mapping onto a complex phonological contour at another) but rather different representations at the same level, without ambiguity.

10. An additional, albeit anecdotal, piece of support for this account may be taken from the behavior of students in introductory linguistics classes. Native speakers quite readily accept the notion that a given element of a sentence "goes with" one neighboring element more closely than another; that is, they appear to have an intuitive grasp of the notion of constituent structure. However, when asked whether the verb "goes with" the subject more or the object more, students tend to fall into disagreement (at least, in the author's experience). Some students object quite strongly to the S(VO) method of grouping, while others vacillate, "seeing it both ways." If intuition can be accepted in the case of grammaticality judgments, it is difficult to exclude its validity in situations such as this.

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ON THE TREATMENT OF ICONOGRAPHIC REFERENCE IN COGNITIVE GRAMMAR

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1. The problem

The initial observation that set in motion the research program from which this paper emerges occurred almost 32 years ago. It was the weekend of 22 November 1963. I was only nine years old, but I was acutely aware of the events in Dallas and Washington, D.C. which were playing themselves out on our TV screens. Sometime during that long, painful weekend, I was struck by the fact that the names "John F. Kennedy" and "Lee Harvey Oswald" did much more than just identify those two men whose pictures were all over my TV screen. Those names also conveyed very powerful messages of good and evil, respectively. What made that weekend so traumatic for many of us was the perception that, at least in this particular case, good had been vanquished by evil.

This observation was filed away along with thousands of other memories of my youth until about two years ago when a set of events in my professional life once again called my attention to the fact that certain texts convey not just referential information but also implicit, if not surreptitious value judgments. At a significant juncture in my academic career, I found myself confronting a text the referent of which was me. It was a very powerful text. It successfully exerted its power over a significant audience of my colleagues and, as a result, it also exerted its power over me, the referent. It was a text which purported simply to summarize my achievements, but its purpose was clearly to condemn[1]. In this regard, it bore a distinct similarity to the text in (1).

(1) As the 37th president, (Richard) Nixon's achievements in reopening relations with China and forging arms agreements with the Soviet Union helped end the Cold War and transformed geopolitics.

But his abuses of power in the White House and the Watergate scandal breached the Constitution, undermined public faith in government and ensured that he will be remembered as the only president forced to resign the nation's highest trust.

I encountered this text in a column titled "What others are saying" on the editorial page of my local newspaper just a few days after Nixon's death in April 1994. It was attributed to the *San Francisco Chronicle*, and it was juxtaposed with seven other texts about Nixon from different newspapers around the world. What struck me most about that column was the contrast between the text in (1) and that in (2), attributed to *The Strait Times* of Singapore.

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[1] cf Hawkins in preparation

(2) President Richard Nixon will be remembered for reasserting U.S leadership in world affairs at a crucial period in the Cold War. He was a statesman with an ability to view global affairs in broad strategic terms and, once having done that, locate U.S. interests precisely and pursue them tenaciously no matter how difficult the terrain got....

In international terms. Watergate would, given the space of time and reflection, turn out to be only a footnote in history. Richard Nixon, by contrast, will be remembered as one of the greatest statesmen of this century.

Each of these texts constitutes an iconographic reference. To put it succinctly, an iconographic reference is a text which constructs an image with an attitude. The text can range in complexity from a single noun, like "idiot," to an entire volume, such as Joe McGinniss' recent biography of Teddy Kennedy, *The Last Brother*[2]. The image conveyed is of a referent, and, as we see in the contrast between (1) and (2), more than one image can be constructed of the same referent. For the purposes of this paper, the significant variable in image construction is the attitude of the writer or speaker toward the referent. This attitude is not expressed explicitly in the text, but rather is conveyed quite clearly in the nature of the image constructed. In (1), the *San Francisco Chronicle* has constructed an image that clearly conveys a negative attitude toward Richard Nixon. Iconographic references of this type can be said to construct a **caricature**. The text in (2) exemplifies a very different type of iconographic reference, which I will call an **icon**. An icon is a reductive image which conveys a very positive attitude toward the referent. In (2), *The Strait Times* of Singapore presents an image of Nixon which clearly reveals that paper's positive assessment of the late president.

This paper appeals to the general framework of Cognitive Grammar (cf. Langacker 1987, 1991) to provide a unified cognitive linguistic analysis of iconographic reference. Working from the foundation of experiential realism (cf. Lakoff 1987), I treat reference as a complex process which has both cognitive and sociopolitical dimensions. This complex socio-cognitive process can be analyzed into three interactive processes: **experience**, **selection**, and **projection**. Experience is the general process of information acquisition that provides the basic resource from which images are constructed. Selection is a cognitive process which involves accessing particular conceptual tools (which Langacker 1987 discusses in depth under the label of "dimensions of imagery") to construct an image from a particular subset of information in the experiential store. Projection is a context-sensitive process that involves strategically relating cognitively constructed images to the pragmatic reality of the actual speech/writing event in which that image is intended to have a particular rhetorical effect.

2. An experientialist perspective on semantics

The standard account of reference as a pragmatic function of a linguistic symbol projected onto a real-world or possible-world entity emerges from a perspective that views semantics as essentially a matter of telling the truth. Truth, as I understand it, exists when the state of affairs characterized by some text is identical to a corresponding state of affairs that exists in some world. Truth is generally taken as an absolute metric, with its absolute status actually being derived from the absolute status of our knowledge of states of affairs in the world.

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[2] I agree wholeheartedly with Priscilla Painton's observation that "by the end of the book, Kennedy remains a stony caricature..." (*Time* magazine, 2 August 1993, p. 56), but I find the book much more entertaining than does Painton precisely because it does little more than construct a caricature and uses 618 pages to do so!

In adopting an experientialist approach to textual reference, I am constrained from seeing semantics as a matter of telling the truth. From my experientialist perspective, I cannot know what absolute truth is, because I have no way of acquiring absolute knowledge of the world. Through experience, I acquire tremendous volumes of information about the world, but none of that information can rightfully be considered absolute knowledge. As pointed out by Johnson 1987 and Lakoff 1987, experience is an embodied process. That is, the nature of experience is profoundly affected by the bodily nature of the experiencer. Experience comprises a complex set of dynamic symbiotic relationships involving at least the experiencer (an individual sentient and creative being), collectives of such beings, and a surrounding ecosystem. Absolute knowledge of any of these entities or subsystems therein is impossible. All understandings of these entities are necessarily artifactual and contingent in that they are by-products of the symbiosis that characterizes experience.

My experientialist perspective leads me to see semantics as a matter of telling stories to make sense of experience. The stories may come in the form of an individual word (e.g. the semantics of *star*[3]), a coherent semantic system (e.g. the semantics of English spatial prepositions), or a particular text about a particular referent or event. Words and semantic systems are stories that are conventionalized across the population of speakers of the language in which the word or semantic system has currency. A particular text, on the other hand, can be much more idiosyncratic. Since the text is the product of a particular act of speech or writing, it may reflect the idiosyncratic perspective of the speaker/writer on a state of affairs at the time the text was constructed. Indeed, one reason the speaker or writer may have for constructing the text is to make the story told in the text conventional across a significant population. This is the case in the story Susan Smith told of her African American carjacker before she finally admitted to pushing her own car into the waters of John D. Long Lake.

Given this perspective on semantics and texts, iconographic reference can be recognized as a significant form of story-telling. What happens when we construct an iconographic reference is that we take carefully selected bits of information ('truths') about a particular referent (usually a person) and from them construct a coherent, believable story about that referent which serves our rhetorical purpose[4] . If our intention is to cause the audience to respect or revere the referent, we construct an icon. If our intention is to cause the audience to disrespect or revile the referent, we construct a caricature. Iconographic references, then, are texts which tell a story loaded not only with biographical information, but also with a definite ideologically-grounded response to the referent[5].

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[3] Truth often has very little, if anything to do with the nature of the story told or the success of that story. Our English-speaking ancestors had very little need for 'the truth' when they told the story of one significant, repeated experience by calling it "the evening star."

[4] In a closing note on his work, Joe McGinniss explicitly admits that he views *The Last Brother* and other biographical tasks as a matter of story-telling. Cf. "Author's Note," p. 619.

3. Iconographic reference: a process perspective

Careful examination of iconographic reference has led me to take quite seriously the dynamic features of the verb "refer". Thus, reference, iconographic or otherwise, is taken here to mean quite literally the process of directing attention or turning to some fundamental resource for information. As I currently conceptualize it, the process of reference involves three interactive processes. One process, experience, provides the fundamental informational resource we turn to in any act of reference. The processual nature of experience manifests itself in the fact that we can refer not only to recollections of prior experiences but also to observations of on-going experience. There is much more to be said about the process of experience, but limitations of time and space preclude further elaboration in the present forum[6].

The directing of attention that is so crucial in reference results from interaction of the processes I am calling "selection" and "projection[7]." These two processes are typically (maybe even necessarily) interactive. Selection is the process of appealing to some set of conceptual tools to direct attention to some subset of experience. Selection, then, is a process that abbreviates exhaustive, encyclopedic experience into the reductive image that must be presented in language. This is a cognitive process which seldom, if ever, goes on without any considerations of the sociopolitical impact of the information selected. Icons and caricatures are not just reductive images, they are strategically and very powerfully reductive. In all cases of iconographic reference, sociopolitical considerations play a determining role in what information is accessed and how it is presented or interpreted. Projection is the process of strategically manipulating particular conceptual tools and experiential information accessed via selection in order to attempt to achieve some sociopolitical purpose with the text.

It would be ideal at this point to discuss a significant inventory of conceptual tools utilized in selection and the possibilities for their strategic manipulation in the projection of images. Again, constraints of the present forum force me to be highly selective[8]. Consequently (a metadiscursive comment here: you must recognize that what I choose to discuss in the text at this point is itself a perfect example of selection and projection working interactively; I am trying to put my best foot forward), I will focus our attention on one of the most fundamental conceptual tools: categorization. Notice that both texts (1) and (2) are constructed on the foundation of a categorizing statement. In (1), the pivotal categorization of Nixon is as a President of the United States. This is a very exclusive category; Nixon is one of only 42 human beings ever to be elected to it. In (2), the pivotal categorization is of Nixon not as a U.S. President, but as a statesman. This, too, is an esteemed category, but not nearly as exclusive as that of U.S. Presidents. The writers of these texts could have selected scores, if not hundreds or thousands of other categories to which Mr. Nixon belongs. However, each writer strategically selected one particular category.

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[5] Richard Nixon implicitly recognized this fact, at least with respect to texts like (1), when he lamented that "Oh, they say, this is the Watergate man and we're not going to listen to him." (*Time* magazine, 2 May 1994, p. 29)

[6] For general background, cf. Lakoff 1987. For more specifics on how experience is interpreted in the present research program, cf. Hawkins 1994.

[7] I unashamedly vacillate in the name I apply to the process I am here calling "projection." "Projection" is my personal favorite, and I take it as the default term because we generally speak of projecting images (cf. R. Lakoff 1990.) However, in a paper for an audience interested in the general phenomenon of deixis (Hawkins 1994), I ignored the term "projection" and highlighted instead "deixis" in arguing that, in the case of iconographic reference, this phenomenon involves the process of ideological deixis. Whereas spatial and temporal deixis involve situating the referential features of a particular linguistically constructed message relative to the spatial and temporal characteristics of the context in which the message is constructed, ideological deixis relates these referential features to the ideological positions of the interlocutors in this particular context. Finally, in a paper for an audience of cognitive linguists (Hawkins 1995), I appealed to Langacker's notion of "grounding" to describe the process of relating a linguistically articulated image to the pragmatic realities of the actual speech or writing event.

The writer of (1) chose the category of U.S. Presidents in order to be able to call attention to a characteristic that distinguishes Richard Nixon from all other U.S. Presidents: he is "the only president forced to resign the nation's highest trust." Clearly, the characterization here of the presidency as "the nation's highest trust" is also strategically selected so as to highlight the esteemed nature of the category and, therefore, the ignominy of being the only member to debase it so profoundly. With this strategic selection of 'true' information, the writer of (1) neatly conveys a highly negative value judgment.

The writer of (2) uses basically the same strategy to accomplish exactly the opposite. In this case, the writer strategically avoids the problems that Nixon represents within the category of U.S. Presidents and selects instead a category in which Nixon is not problematic: statesmen. The text suggests that within this esteemed category, which has far more members than the category of U.S. Presidents, Nixon distinguished himself as among the most accomplished members in the past 95 years. As in the previous example, then, text (2) involves a categorization and a salient distinguisher (another conceptual tool of selection). In this case, both are strategically selected to construct a Nixon icon.

Let us now take a brief look at two very different caricatures also built on the foundation of categorizing statements. The text in (3) is a caricature of Susan Smith quoted in *Time* magazine (14 Nov. 1994). It was attributed to a woman at the Greenville/Spartanburg Airport who had just heard the news that Smith had confessed to drowning her two sons.

(3) She's slime, just slime.

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[8] Indeed, Langacker (1987) dedicates at least 300 pages of a 500-page volume to a detailed discussion of a relevant inventory of conceptual tools. Furthermore, I have only begun to examine the strategic projective manipulation of but a few of the tools Langacker proposes.

This caricature is built on the foundation of a categorization of Susan Smith as "slime." While this categorization is overtly metaphorical, the reader need not dig deeply to see a serious attempt to associate this young mother, perceived as a child-murderer, with the lowest forms of life on earth. The speaker seems to emphasize the perceived appropriateness of this categorization with strategic redundancy. Finally, the use of "just" reflects the conceptual strategy of selective inattention. Selective inattention is criterial for categorization in that it allows us to ignore certain significant differences between experiences so that we can attend primarily to the similarities between those experiences. In this instance, however, the selective inattention has the effect of a refusal on the part of the speaker to recognize any experiences in the life of Susan Smith other than her role in drowning her two sons.

The caricature of Louis Farrakhan in (4), from the cover story of *Time* magazine on 28 February 1994, is quite interesting.

(4) Louis Farrakhan is a problem.

> He is a problem for the Rev. Benjamin Chavis of the N.A.A.C.P. and Abraham Foxman of the Jewish Anti-Defamation League of B'nai Brith, who met last week to discuss what to do about him in a meeting so sensitive they would not even confirm he was the topic under discussion. On Saturday, the N.A.A.C.P. said it would convene a national summit of black leaders and would pointedly include Farrakhan as a gesture of support, despite expected Jewish condemnation. "We have every right to convene African-American leadership," said Chavis. "There's a deep hunger in our community."
>
> He is a problem for the Congressional Black Caucus, whose chairman, Representative Kweisi Mfume of Maryland, has embroiled himself in controversy by pledging a "covenant" of cooperation--since disavowed--with both Farrakhan and mainstream black leaders.
>
> He is a problem for a broad range of American blacks, who rightly fear that his anti-Semitic rhetoric erodes the moral authority of his appeals against racism and who are chagrined that his Nation of Islam, long an angry voice of the underclass, now enjoys a following among college students.
>
> He is a problem for American Jews, who want to ensure that his brand of racism means automatic disqualification from national debate.
>
> He is a problem for the vast majority of Islamic Americans, who already suffer from having their religion equated with hostage taking and terrorism and who mostly reject Farrakhan's racial isolation and abuse of other faiths.
>
> He is a problem for some of his adherents, who hear in his speeches black self-love and self-help and who see the Nation of Islam as a force against crime and drugs, bringing order and discipline to neighborhoods with almost none--yet who know that many of their associates hear only hatred in his preachments.

> And Farrakhan, still impetuous at 60, is a problem for himself. In private a calm, seemingly rational man yearning for a place among trusted elders of his race, he is apt in public to get carried away on a wave of rhetoric and say things so intemperate, so easily misunderstood--and sometimes not misunderstood--that he thwarts his ambition.
>
> Above all, he is a problem for an America that is increasingly multiracial and multicultural and is consequently in growing need of tolerance and mutual respect. His success underscores two ugly truths of American life. A great many black Americans view their fellow white citizens with anger. And a great many white Americans view their black fellow citizens with fear.

Though much more extended than the other caricatures we have examined (but significantly less extended than McGinniss' caricature of Teddy Kennedy), this one is also built on the foundation of a categorization. However, this categorizing statement is different from others analyzed earlier in that it constitutes an explicit judgment: "Louis Farrakhan is a problem." The text uses strategic redundancy to emphasize this judgmental categorization. Most interesting, however, is the way the text also uses generalization across distinct communities to underline the appropriateness of the judgment that "Louis Farrakhan is a problem." By calling attention to the variety of communities which might share the negative assessment of Farrakhan, the text is effectively suggesting that these distinct communities may differ significantly in the ideological positions they take on other issues. The power of the caricature is derived, in a large part, from the text's suggestion that the negative judgment of Farrakhan can be arrived at while operating within a wide variety of ideological systems.

4. Of politicians and murderers: referent as battleground

I want to close this paper with a set of observations which I find quite alarming. Iconographic reference has become a very important form of story telling in American life. Icons and caricatures are intentionally reductive images. They purposefully present only part of a complex picture, and they do this strategically so as to call at least as much attention to a value judgment as to factual information about the referent. What concerns me greatly is that iconographic reference, in this day of sound bites and spin control, has spawned a form of social discourse in which a referent is reduced to a battleground for opposing ideologies. It was this ideological battle of icon against caricature that drew my attention to the newspaper column in which I encountered (1) and (2). Richard Nixon is an interesting case precisely because he has been, since the beginning of his public life, characterized by countless icons and caricatures. Nixon provided the ammunition for a protracted ideological battle between those who shared his political vision on any particular issue and those who opposed him. Among the weapons in this battle were strategically constructed icons and caricatures. The same ideological battle we saw in (1) and (2) raged in the pages of *Time* magazine in the 2 May 1994 issue that observed Nixon's passing. In this regard, consider the set of texts in (5).

(5)a. Richard Nixon's first conscious memory was of falling--falling and then running. He was three years old, and his mother had taken him and his brother out riding in a horse-drawn buggy, and the horse turned a corner

> too fast on the way home. The boy fell out. A buggy wheel ran over his head and inflicted a deep cut. "I must have been in shock," Nixon recalled later, but I managed to get up and run after the buggy while my mother tried to make the horse stop." The only aftereffect, Nixon said, was a scar, and that was why he combed his hair straight back instead of parting it on the side.
>
> In a sense, Nixon spent his whole life falling and running and falling again. A symbol of the politics of anger, he was one of the most hated figures of his time, and he was also the only man in U.S. history ever to be elected twice as Vice President and twice as President. In the White House, he achieved many major goals: the U.S. withdrawal from Vietnam, restored relations with China, the first major arms agreement with the Soviet Union and much more. But he will always be remembered, as he was at his death last week at 81, as the chief perpetrator--and chief victim--of the Watergate scandal, the only President ever to resign in disgrace.

b. His first public appearance [after resigning the Presidency] came in 1978, and then the long, slow process of self-rehabilitation. Perhaps, in his last years, having regained a certain amount of public respect and even some grudging admiration, having acquired four grandchildren and all the comforts of leisurely wealth, Nixon finally found a little peace, finally got over that mysterious anger that had fueled his ambition throughout his long life. Perhaps.

Taken independently, (5a) and (5b) each can be recognized as presenting a caricature of Richard Nixon. However, these texts are not, in fact, independent of each other. The text in (5a) comprises the first two paragraphs of a nine-page article (half of which is written text, the other half photos). The text in (5b) is the final paragraph of that same article. One need not have any further information about the rest of the article to conclude that it constructs an extended caricature of Richard Nixon. The key indicator of this is the strategic use of what psychologists studying human memory call the primacy and recency effects. When a person is deluged by more information than can be held in short-term memory, the person inevitably recalls two relatively small sets of information: that encountered first (primacy effect) and that encountered most recently (recency effect.) The writer of this article made strategic use of the primacy and recency effects to guarantee that, no matter how objective the body of the article was, the reader would be left with a negative assessment of Richard Nixon.

This caricaturizing article was juxtaposed in that issue of *Time* magazine with another article which uses the same conceptual tools of primacy and recency to construct an icon of Richard Nixon. As with (5a) and (5b), the two parts in (6) could each be treated independently as an icon. However, they are textually linked in virtually the same way as are (5a) and (5b). That is, (6a) is the first piece of text that follows the title of a four-page article (less than half of which is written text), and (6b) is the final paragraph in the same article.

(6)a. Richard Nixon failed more spectacularly than any other U.S. President, yet by sheer endurance he rebuilt his standing as the most important figure of the postwar era.

b. History will judge Richard Nixon as much more than the Watergate man. And he leaves another, brighter monument: his own superhuman determination and stamina. It seems almost impossible that he has finally been defeated.

Given these two "bookends," it is clear that this particular article constructs a very positive image of Richard Nixon, i.e., an icon.

Some may say that I needn't be concerned about iconographic references to our political and religious leaders and those who aspire to such leadership positions. It just comes with the territory, and it really is the least we can do in response to the cavalier treatment we often get from them. And, after all, the public discourse is just a game. It's the decision-making of our leaders that is the serious business. As long as their decision-making is not based on the same sort of reductive reasoning that informs iconographic reference, then we needn't worry, right?

Wrong! We live in a democratic society which entrusts us with important decision-making responsibilities of our own. Our leaders wouldn't be in leadership positions if we didn't put them there. If our electoral decisions are as profoundly affected by iconographically structured public discourse as I fear they have become since at least the 1960 Presidential election, then we have a significant social problem.

We are also entrusted, through the criminal justice system, with the awesome responsibilities of judging the guilt or innocence of the accused and, in some cases, of determining the appropriate treatment of the convicted criminal. For over a year now, we have been subjected to a media blitz of iconographic references in the OJ Simpson case. Let's hope that the jury's life-and-death decision is not determined on the basis of accepting a well-constructed icon or caricature of OJ Simpson.

The evidence, however, suggests that it may. An article titled "The case is made, for now" in the 17 July 1995 issue of *Time* magazine makes it quite clear that the prosecution's job over the past few months has been to tell a good story about a bad OJ Simpson who could murder his former wife and a friend of hers. The article suggests that many prosecutors across the country believe that, despite "an incredible amount of circumstantial evidence," the prosecution is in trouble precisely because their story was told poorly.

The OJ Simpson affair has been a clear case of the battle of icon and caricature ever since the LA District Attorney's office began, just a few days after Simpson's arrest in June 1994, a public campaign to undermine the OJ Simpson/Football hero icon in order to establish the feasibility of the OJ Simpson/Murderer caricature.

The recently concluded Susan Smith murder trial had an interesting twist on this scenario. Although she is rich fodder for the construction of caricatures, Susan Smith does not seem to be the stuff icons are made of. For nine days last fall, she tried to hide behind the icon of the loving, grieving mother and gave us a racist caricature in the form of a fictional crazed African American carjacker, but the ultimate result of this rhetorical strategy was to hand the prosecution the powerful caricature of an evil, murderous mother. In response to this caricature, the defense countered not with an icon of Susan Smith, but with what I will call an **anti-caricature**. Susan Smith, the defense argued, deserves our sympathy (and, crucially, not the death penalty) because she is the victim of a caricature, the abusive father. She had one father who subjected her to the ultimate abandonment--his own suicide, and another father who subjected her to almost a decade of sexual abuse. News reports of the jury's verdict suggest that this victim anti-caricature was a major factor in the jury's decision not to give Susan Smith the death penalty.

I have never been a fan of Richard Nixon or Teddy Kennedy. I don't have much sympathy for murderers, but I can't support the death penalty either. Private and public lives are incredibly complex, and so, the making of decisions in our lives is similarly complex. We must not allow ourselves to simplify this complex task by basing our decision-making on elegant, entertaining battles of icon and caricature.

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SEMIOTIC ANALYSIS OF MEANING

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1. THE DEFINITION OF NATURAL LANGUAGE

Our starting point is a definition of natural language in accordance with which we may make inferences about linguistic phenomena. The semiotic theory of language, called Applicative Universal Grammar (AUG) defines natural language as follows:

> *Natural languages are instruments of communication that transpose—each in its own way—an unanalyzed continuum of human experience into a system of discreet bilateral linguistic units. Each linguistic unit is a concept linked to a phonic segment—the sign of the concept. The sign, in its turn, is represented by phonemes—discreet acoustic distinctive elements.*

The sign and the concept linked to it—the meaning of the sign—are relations, not objects. The sign is a term of a binary relation 'to be a sign of'. AUG) posits two relations:

> *To be a sign of: X is a sign of Y.*
>
> *To be a meaning of: Y is a meaning of X.*

The terms 'sign' and 'meaning' are quite analogous to such terms as 'master' and 'servant', 'ancestor' and 'descendant', or 'husband' and 'wife'.

There is no such class of entities that have certain inherent properties that can be called 'signs'. Just as we must distinguish between a phonic segment in itself and its function as a sign, so we must distinguish between a concept in itself and its function as the meaning of a sign. Concepts in themselves are mental images, are ideas about some slices of reality. They become meanings of signs only when they are put in correspondence with some physical entities that due to this correspondence take on the function of signs.

The linguistic unit is a combination of two relational entities—sign and meaning just as the married couple is a combination of two relational entities—husband and wife. Whether two converse relations must be treated as a new entity depends on the place of these relations in a system. For example, under the U.S. tax system, a married couple is taxed differently than when husband and wife file the tax return separately. Linguistics must treat sign and meaning as parts of a bilateral entity—linguistic unit; otherwise it runs into serious difficulties.

The acoustic property of signs, partaking in linguistic units, and a system of acoustic distinctive elements—phonemes—are what distinguishes a natural language from artificial languages such as languages of mathematics, physics, chemistry, and other sciences, where signs are neither acoustic nor are represented by phonemes.

2. THE PRINCIPLE OF SEMIOTIC RELEVANCE

The definition of natural language presented above claims that every natural language has its own way of transposition of human experience into linguistic units. This means that the correspondence between the sign and its meaning is conventional in the sense that it does not hold always and everywhere or depends on laws that hold always and everywhere, but is a *habit of society*. By contrast, relations that result from physical, biological, physiological or psychological laws are non-conventional. Signs fulfill a *communicative function*. The phenomenon that the correspondence between the sign and its meaning is conventional is determined by the Principle of Semiotic Relevance (Shaumyan 1987: 11):

> *The only distinctions between meanings that are semiotically relevant are those that correlate with the distinctions between their signs, and, conversely, the only distinctions between signs that are semiotically relevant are those that correlate with the distinctions between their signs.*

This principle may be illustrated by the following examples. The English word *wash* has different meanings in the context of expressions *wash one's hands* and *wash the linen*. But the distinction between the two meanings is irrelevant for the English language because this distinction does not correlate with a distinction between two signs: in both cases we have the same sign 'wash'. Therefore these two meanings must be regarded not as two different meanings but as two *variants* of the same meaning. On the other hand, the meaning of the Russian word *myt'*, which corresponds to the meaning of the English *wash* in *wash one's hands*, and the meaning of the Russian word stirat', which corresponds to the meaning of the English *wash* in *wash the linen*, must be regarded as different meanings rather than variants of the same meaning as in English, because the distinction between the meanings of Russian *myt'* and *stirat'* correlates with different signs., and therefore is relevant for the Russian language. As to relevant and irrelevant distinction between signs, consider, for instance, the distinction between the signs *nju* and *nu*. The distinction between these signs is not correlated with a distinction between their meanings. Therefore these forms of signs are variants of the same sign, denoted by a sequence of the letters *new*.

One may refer to instances of so-called homonymy as counterexamples against the Principle of Semiotic Relevance. For example, the word *bank* has quite different meanings in *the bank of the river* and *the money in the bank.*These two words are called *homonymous* by tradition. One may argue that the difference between the two meanings is so drastic that we must distinguish two signs here $bank_1$ and $bank_2$ having the same acoustic form. The concept of homonymy is a fallacy because it contradicts observable facts. We observe that the difference between the meanings of $bank_1$ and $bank_2$ depends only on the context, the phonic segment *bank* being the same in both cases. Two concepts which do not correspond to different phonic segments belong in the same class of meanings denoted by a sign. No matter how big the difference between two concepts, this difference is not semiotically relevant if it does not correlate with difference between some phonic segments. A sign corresponds to a class of meanings the difference between which is not relevant semiotically. In case of a drastic difference between meanings of a sign, the sign is ambiguous but is one, not two signs.

As was said above, we must distinguish three different concepts: sign, meaning, and linguistic unit as the combination of sign and meaning. In the light of this distinction, we must resolve the difficulty in the analysis of $bank_1$ and $bank_2$ as follows: $bank_1$ and $bank_2$ are different words represented by the identical sign *bank*. The sign *bank* is *polymorphic*. AUG replaces the obsolete concept of homonymy by the concept of *polymorphism of signs*. One polymorphic sign represents several different words or other linguistic units.

3. LEXICAL AND GRAMMATICAL MEANING

Any linguistic theory must respect the distinction between lexical and grammatical meanings (or between *lexemes* and *grammemes*, in our use of these terms, which does not necessarily coincide with the use of these terms by other linguists). This distinction is theory-neutral: any linguistic theory worth its name must explicitly or implicitly respect this distinction, which has been clearly formulated by Boas and Jakobson. Unlike lexical meanings, grammatical meanings of language express those aspects of the experience of language users that *must* be expressed. For example, the distinction of present, past and future is imposed on Russian, because it is obligatory for Russian due to special devices denoting this distinction. On the other hand, Indonesian does not have such devices, and relies on context or adverbial expressions for presenting time perspective. In Indonesian, the expression of time perspective is part of lexical meanings.

To do justice to the fundamental opposition of grammatical meanings to lexical meanings, AUG states the *Principle of Obligatoriness:*

> *Any language contains a closed set of meanings, called grammatical meanings, which are obligatory for presenting various aspects of experience.*

There is not necessarily a proper coordination between the grammatical meaning and the lexical meaning of a word. A proper coordination of these meanings we observe in the word *cat,* where both the structural and the lexical meaning refer to an object. But often the structural and the lexical meaning of a word act in different or directly opposite directions. For example, the grammatical meaning of *rotation* refers to an object, while its lexical meaning refers to a process. Conversely, the grammatical meaning of *to cage* refers to a process, while its lexical meaning refers to an object. To do justice to this phenomenon, AUG states the *Principle of a Free Coordination of Grammatical and Lexical Meanings*:

> *The grammatical and lexical meanings of a word or a construction may refer to the same or different types of experience.*

There are two classes of grammatical meanings: *inflectional* and *derivational.*

Derivational meanings concern word structure. For example, the meaning of suffix *-er* in *worker* or of suffix *-ess* in *lioness* are derivational meanings. Mel'cuk suggests the term "derivateme" for derivational meaning (Mel'cuk 1993: 294).

The inflectional class divides into *functional* and *specifying* the meanings. Functional meanings characterize connections between words having different syntactic function in the sentence, whereas specifying meanings characterize different kinds of words having identical function. For example, characterization of words as predicates, arguments of predicates, attributes, and the like is characterization of words by the functional meaning of their morphemes, whereas characterization of verbs by their tense or aspect or characterization of nouns as being determinate or indeterminate is characterization of words by specifying meaning of their morphemes. Some linguists use the term "syntaxeme" for functional meaning and "semanteme" for specifying meaning. Besides the fundamental division of linguistic meanings into two opposite classes, there is another, logically independent, division of linguistic meanings into syntactic as opposed to semantic meanings. The term "semantic meaning" covers both lexical meanings and all grammatical meanings except for syntactic ones. This use of the terms "syntactic" and "semantic" is explained by the fact that traditionally many linguists do not consider syntactic meanings to be meanings but merely functions. In the light of the semiotic analysis of meanings this is a fallacy. The source of this fallacy is a highly abstract character of syntactic meanings: they denote merely connections between words.

The erroneous notion that syntactic relations are not meanings has led to the view that syntax and semantics relate to each other as formal and interpretive components of grammar, most clearly formulated by Chomsky and Montague. On this view, syntax must be interpreted mainly by various kinds of lexical meanings, in particular by so-called thematic meanings. This is nothing but a confusion of grammatical and lexical meanings which precludes understanding both of syntactic and lexical phenomena. AUG rejects the opposition of syntax and semantics in the sense of Chomsky and Montague.

Although we disagree with the erroneous view that syntactic relations are not a kind of grammatical meanings and with the opposition of the syntax and semantics in the sense of Chomsky and Montague, there is another sense of opposition of syntax and semantics which is enlightening and insightful. Semantic meanings are directly connected with the real world whereas the syntactic meanings, being functional, that is, connective meanings, are connected with the real world only indirectly. Syntactic relations have their own meaning, they do not need an interpretive component. Syntax is a mold for semantics. Syntax and semantics relate to each other not as a formal and interpretive component of grammar but as the distributional form and the content of the distributional form. Technically, syntactic relations are relations between words in different positions in the sentence, whereas semantic relations are relations between words in the same position in the sentence: syntactic relations are "horizontal", whereas semantic relations are "vertical".

The view of syntax and semantics as form and content demands a strict distinction between syntactical and lexical meanings, whereas the view of syntax and semantics as formal and interpretive components of grammar leads to the confusion of grammatical meanings.with lexical meanings. We are able to understand properly the crucial place of syntax in grammar only by a strict distinction of grammatical and lexical meanings.

The place of syntax in language is paradoxical: syntax is both the servant and the master of semantics. Viewed in its relation to the real world, syntax is subordinated to semantics because, denoting only connections between words, syntax is connected with the real world only indirectly, only through lexical meanings of words. Viewed as a structural component of language, syntax dominates semantics.

Syntax is the heart of language structure, as syntax imposes structure on the meanings of linguistic unit. Syntax permeates language. By exploring properly syntax we gain deep insights into the most intimate aspects of language structure. This has been demonstrated by impressive results of an insightful, although controversial in many fundamental aspects, Relational Grammar of Perlmutter and Postal (Perlmutter 1983). As recent publications by Apresjan (1973, 1992), Pustojevsky (1991), Levin and Rappaport Hovav (1995), and other lexicologists have shown, syntax permeates lexicon no less than grammar. Syntax is the structure that carries meaning. Without appreciation of syntactic structure underlying lexicon, lexical semantics is bound to fail.

The study of syntax and of the syntax-lexical interface belong to central problems of present-day linguistics.

4. ERRORS IN GRAMMATICAL ANALYSIS RESULTING FROM THE CONFUSION OF GRAMMATICAL WITH LEXICAL MEANING

The confusion of the grammatical meaning with the lexical meaning of the linguistic unit leads to grave errors in grammatical analysis. As a result of these errors, innumerable quasi-grammatical meanings are ascribed to verbal tenses and aspects, to noun cases, etc. Here are some examples of these errors.

Marantz (1984: 129) assigns different roles to the object of the preposition *by* in

a. Hortense was passed by Elmer. (agent) (1)
b. Elmer was seen by everyone who entered. (experiencer)
c. The intersection was approached by five cars at once. (theme)
d. The porcupine crate was received by Elmer's firm. (recipient)

AUG treats all objects of *by* as grammatical agents. Marantz assigns roles to these terms because he lumps together grammatical and lexical meanings. One must strictly distinguish between and not confuse grammatical and lexical meanings. Grammatical meanings are obligatory meanings that are imposed by the structure of language, while lexical meanings are variables depending on the context. The grammatical meaning "agent", assigned to a term is a formal meaning that treats an object denoted by the term as an agent whether or not it is a real agent. Thus, the objects denoted by the terms in (1b-1d) are not real agents in the context of the lexical meaning of predicates added to the lexical meaning of the noun stems, but linguistically they are treated *as if* they were real agents. Since lexical meanings are closer to reality, a conflict often arises between the lexical and linguistic meanings of a term. We can observe this conflict (1b-1d), whereas in (1a) the lexical meaning of the term agrees with its grammatical meaning.

Every word has a number of meanings: some of them are lexical meanings and others are grammatical meanings. Although from a structural point of view the grammatical meanings are the most important, they are least conspicuous. To dispel any illusions, we must understand that the grammatical meanings of a word are not directly accessible; they are blended with the lexical meanings. The blend of the lexical and grammatical meanings constitutes a heterogeneous object. While the lexical meanings are obvious, an insight into the grammatical meanings requires special methods of analysis.

The grammatical meaning "agent" can be separated from the lexical meaning by means of a thought experiment. If we replace the lexical morphemes of a word with dummy morphemes, we obtain the grammatical structure of a word in pure form. Here is an example of such an experiment (Fries, 1952: 71)):

a. Woggles ugged diggles. (2)
b. Uggs woggled diggs.
c. Woggs diggled uggles.
d. A woggle ugged a diggle.
e. An ugg woggles diggs.
f. A diggled woggle ugged a woggled diggle.

All of these sentences clearly are transitive constructions, owing to the specific word order and nominal and verbal morphemes. It is clear that the first terms in these constructions mean "agent", whereas the second terms mean "patient". Now we can relate passive constructions to all of these sentences:

a. Diggles were uggged by woggles. (3)
b. Diggles were wogged by uggs
etc.

It is clear that the preposition *by* introduces a term meaning "agent" in these sentences. Now let us substitute a lexical morpheme for a dummy root in a verb. If we substitute the morpheme *hate* for a dummy verbal root, we will get sentences such as

Woggles hated diggles (4)

We can relate a passive construction to (7):

Diggles were hated by woggles (5)

From the viewpoint of the lexical meaning of *hate,* the first term *woggles* in (7) and the oblique term in *by woggles* in (8) mean "experiencer". But this meaning has nothing to do with the grammatical meaning of these terms ("agent"). which remains invariant under various substitutions of lexical vebal roots whose meaning may often conflict with the grammatical meaning of the terms.

Lexical meanings are the meanings of morphemes that constitute word stems, while grammatical meanings are the meanings of inflexional morphemes,prepositions, conjunctions, and other devices such as word order. Most current works on grammar disregard the fundamental opposition *grammatical meaning:lexical meaning* and confound these notions. Recently, Foley and Van Valin have proposed the notions of *actor* and *undergoer,* which they define as "generalized semantic relations between predicate and its arguments" (Foley and Van Valin, 1984: 29). "Actor" and "undergoer" are abstract notions that roughly correspond to the notions "grammatical agent" and "grammatical patient" in the sense of AUG. Still, Foley and Van Valin arrive present these abstract notions as purely empirical generalizations without defining the basis for their generalization. The work lacks a distinction between grammatical and lexical meanings, which is the necessary basis for the above and other abstractions in grammar. We arrive at the grammatical notions by separating, by abstracting, grammatical meanings from lexical meanings.

Finally, an example of an error in the analysis of ergative constructions. Apart from controversy about what syntactic constructions must be recognized as ergative, the prevailing view is that even in syntactic constructions commonly agreed as being ergative the notion "agent" is an informal concept. Thus, Comrie writes:

> *I explicitly reject the identification of ergativity and agentivity, [...] despite some similarities between ergativity and agentivity, evidence from the wide range of ergative languages points against this identification.*

To support his view, Comrie quotes examples, such as the following sentences from Basque (Comrie, 1978: 357):

Herra -k z - erabiltza (6)
hatred -Erg you-move
"Hatred inspires you"

Ur-handia-k d-erabilka eihara (7)
river Erg. it-move mill-Abs.
"The river works the mill"

Such examples show that agentivity is denied a formal status in ergative languages because of the confusion of the lexical and grammatical meanings of nouns in the ergative case. From the grammatical point of view, any noun in ergative case means "agent", no matter what its lexical meaning is and no matter in what context it occurs. In Comrie's examples, the lexical meaning of *herra-k* in (9) and of *ur-handia-k* in (10) conflict with the meaning of the ergative case, which is a grammatical meaning. The ergative case has nothing to do with the objects of reality that the lexical meanings of nouns refer to. It has nothing to do with real agents. Rather it is a form of presentation of anything as an agent, no matter whether or not it is a real agent.

5. THE PRINCIPLE OF SUPERPOSITION. POLYSEMY AND SYNONYMY AS COMPLEMENTARY NOTIONS

Compare two sentences:

a. Mary baked an apple (8)
b. Mary baked a cake

The prevailing view is that here we have a case of polysemy: the verb *baked* has two separate meanings here: in *a.* it refers to an action directed at an existing object, and in *b.* it refers to an action producing a result. This view seems to be based on the assumption that a linguistic unit X accompanied by a linguistic unit Y means M. This is an ambiguous assumption. This may mean that the whole construction X + Y means M, or that the linguistic unit X *itself* means M. These two alternative hypotheses about the function of context have been first clearly formulated by Zawadowsky, who presented a detailed argumentation in support of the first hypothesis, from which it follows that the context of a word does not change the meaning of the word but only adds a new meaning to its meaning; hence the alleged polysemy of words (in our case, the alleged polysemy of *baked*) is fictitious (Zawadowski 1975)

Here is not the place to discuss the complex problem of context, which is the subject of lively discussion in contemporary lexical semantics (Pustojevsky 1991; **Goddard and Jayez** 1993; Pustojevsky and Bouillon 1995). We will only say a few words about a semiotic approach to this problem. In the light of the Principle of Semiotic Relevance, the regular context of a word adds to the meaning of the word rather than changes it because the meaning of the word remains the same as long as the phonic segment correlated with the meaning of the word remains unchanged.

There is, however, a constraint on the Principle of Semiotic Relevance, which defines conditions under which the context changes the lexical or grammatical meaning of the word it accompanies. This constraint is called the *Principle of Superposition:*

> *If, under the influence of the context, the lexical or grammatical meaning of word A coincides with the lexical or grammatical meaning of word B, then the meaning of B is superposed on the meaning of A as the secondary meaning of A.*

AUG uses the term superposition in a sense similar to the use of this term in mathematics and physics (Shaumyan 1987, 1995; Shaumyan and Segond 1994). Here are examples of superposition.

The inherent meaning of *lion* is a name of an animal. But in combination with some words it acquires by superposition the secondary meaning "a famous and important person", as in *a literary lion.* The inherent meaning of *black* is "of the darkest color", but the word may acquire by superposition the secondary meaning "very bad", as in *black despair.*

The use of a noun as an adjective, as in *silk dress,* is a case of the syntactic superposition: the syntactic meaning of the adjective is superposed on the syntactic meaning of the noun as a secondary syntactic function of the noun: the noun *silk* is used both as a noun and as an adjective.

Superposition generates true polysemy of a linguistic unit by adding to it a set of secondary functions that are synonymous to primary functions of other linguistic units. Polysemy is based on synonymy: a linguistic unit is polysemous because it is synonymous with other linguistic units.

LInguistic synonymy is a case of the concept of semiotic equivalence which covers both linguistic and logical equivalence. Semiotic equivalence belongs to the central concepts of semiotics. This topic is addressed in Sypniewski 1993, 1994.

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VIII

FROM THE TWENTY-FIRST
LACUS FORUM 1994

In *The Twenty-first LACUS Forum 1994*, the following paper was printed with a page missing. The series editor acknowledges and regrets the mistake and reprints the paper here in its entirety.

RENAMING THE BALTIMORE ORIOLE: ANOTHER KIND OF "CORRECTNESS"

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In May of 1988 I drove from Vestal, New York, to Point Pelee National Park at the southern tip of Ontario, in order to observe the climax of the spring migration of birds from the tropics. The narrow peninsula, reaching for miles into Lake Erie, attracts a concentration of small land-birds from a large part of Ohio, as they take the shortest flight over water. When I arrived and began to walk around, the first great experience was to be in the midst of dozens of Baltimore orioles; all the males were singing. I had been used to seeing them at home, but not more than two or three at a time. After the trip I wrote up the highlights for the newsletter of the Naturalists' Club of Broome County. The editor found it necessary to redo my memoir on her typewriter; and I noticed that where I had written "Baltimore", she had first copied it but then erased it and instead typed in the slightly shorter word "Northern". I did not make an issue of the change; but it lingered in my memory and rankled.

Eventually I thought through the linguistic implications of her correction. As she looked at it, "Baltimore orioles" was a mistake, which a careful editor must by all means correct before it went any further. Not that I was wrong as to which kind of oriole I had seen, but that I ought not to have called it the "Baltimore oriole", because that name has been dropped in favor of "northern oriole". Dropped by whom? The authoritative, scientific observers.

I was already aware of recent books in which it is the "northern oriole", and I understood pretty well the rule, or principle, that lay behind the change: Formerly, when the oriole I was talking about was ranked as a distinct species, *Icterus galbula,* it was entitled to be known in English as the "Baltimore oriole", distinguishing it from all other orioles. But it has since been demoted to a subspecies; and so has its counterpart in the western states and the adjacent parts of Canada and Mexico, which used to have the scientific name *Icterus bullockii* — i.e., "Bullock's oriole" — but is now officially *Icterus galbula bullockii.*

The reason for demoting the two erstwhile species to subspecies is that they are judged not to be distinct enough; for they hybridize in the central region, from southern Saskatchewan to northern Texas, where their breeding ranges overlap. And so a new name was thought up to replace "Baltimore oriole" and "Bullock's oriole". The choice was adequate, if not brilliant: "northern oriole" does differentiate this bird from the orchard oriole, which just barely reaches into Canada, and all the other species of orioles are strictly tropical or subtropical. To me, however, as an English speaker and writer, all this is not reason enough to give up the familiar and highly meaningful designation "Baltimore oriole".

I would like to understand the thinking of the authorities on ornithology, though my linguistic point of view disagrees with theirs. The American Ornithologists' Union published its first *Check-list of North American Birds* in 1886; the subsequent editions date from 1895, 1910, 1931, 1957, and 1983, incorporating great changes in classification and, accordingly, in nomenclature too. The most pervasive and lasting concern, throughout the hundred years, has been to define and refine the species. As more and more subspecies were described, the ornithologists coined a third Latin name for each of them — such as *Turdus migratorius nigrideus* for the subspecies of robin that breeds in northeastern Canada and is on the average darker than the robins found over most of the continent; but eventually they stopped giving an English name to every subspecies. For such differences are not, on the whole, plainly visible during field observations; for them to show up, many specimens have to be studied and measured close at hand. Furthermore it appears that the birds themselves pay little or no heed to those fine differences; along the border between the territories of any two subspecies, they freely mate with each other.

In the fifth edition (1957) the American Ornithologists' Union decided to dispense altogether with the English names that had previously been given to subspecies. At that point nothing of value seemed to be lost by dropping such names as "southern robin" for *Turdus migratorius achrusterus* of the southeastern states and "western robin" for *Turdus migratorius propinquus.* For ordinary purposes of discourse all of these are just robins. But a scientific theory requires a more objective justification: species differ from one another **genetically,** in some way that subspecies do not; and so the essential criterion for a species becomes its "reproductive isolation",[1] or incapacity to interbreed successfully with a related species.

The interbreeding of Baltimore and Bullock's orioles was reported as early as 1905;[2] and the fifth edition of the *Check-list* (p. 534) noted that they hybridize extensively "in western Oklahoma and western Nebraska". But only in 1973, when the thirty-second supplement to the *Check-list* came out, did the American Ornithologists' Union face the need for a new name:

> *Icterus bullockii* is considered conspecific with *Icterus galbula;* the latter becomes the species name to be included as the binomen of all component subspecies. The English name for the enlarged *Icterus galbula* becomes Northern Oriole; "Baltimore Oriole" and "Bullock's Oriole" remain available for the *galbula* and *bullockii* subspecies groups, respectively. . . .[3]

Northern Oriole was soon adopted by the contributors to *The Auk,* the quarterly publication of the A.O.U.[4] The supplement explicitly authorized the retention of the old names, saying that they **remain available;** but by putting quotation marks around "Baltimore Oriole" and "Bullock's Oriole", it implies somehow that these designations are no better than makeshifts — the so-called Baltimore and Bullock's orioles — whereas the new name is the true one, corresponding unequivocally to the facts of science.

However, the sixth edition of the *Check-list* in 1983, while listing only the species "**Icterus galbula** (Linnaeus). NORTHERN ORIOLE" (p. 737), acknowledges that a difference of opinion remains, whether to set up one species or more than one.[5] This edition also brings in, and to some extent develops, the new concept of the **superspecies** (pp. xiv-xv), which could seemingly have been applied to these orioles just as well as it is actually applied there to the hybridizing sapsuckers of the woodpecker family. Then the Baltimore oriole and Bullock's oriole would count as two species comprising a superspecies, and there would be no need to reject the familiar English names for them.

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[1] *Check-list,* 6th ed. (1983), pp. xiii-xiv. This edition departs greatly from its predecessors: The area is now expanded south all the way to Panama, and takes in the West Indies and the Hawaiian Islands; previously it had covered nothing south of the border between the United States and Mexico, except for Lower California. On the other hand, to make room for hundreds of additional southern species in the book, subspecies are not listed as they were in the previous editions; in most cases it is not even mentioned whether a species is divided into subspecies.

[2] A. C. Bent, "Summer Birds of Southwestern Saskatchewan," *The Auk,* 25 (1908), 29.

[3] Ibid. 90.417.

[4] The annual index to *The Auk* changed from "Oriole, Baltimore" and "Oriole, Bullock's" in 1973 to "Oriole, Northern" in 1974, but some articles in the latter year still used the old terminology.

[5] "The three groups have often been regarded as separate species, *I. galbula* [BALTIMORE ORIOLE, 507], *I. bullockii* (Swainson, 1827) [BULLOCK'S ORIOLE, 508], and *I. abeillei* (Lesson, 1839)

The title page of each edition states the motto, "Zoölogical nomenclature is a means, not an end, to Zoölogical Science." No doubt the scientific ornithologists perceive, more clearly than ever, that the natural phenomena are very complex, and that the actual gradations do not fall neatly into a dichotomy — either separate species, or else mere subspecies of the same species. The fine print in the latest edition (reproduced by the fine print of my footnote) reveals that they are not unanimous in their classification of the orioles; but still, for the purpose of publishing a *Check-list,* the prevailing view holds sway. And so, at least for the time being, their rule in regard to English names militates against "the Baltimore oriole" and "Bullock's oriole"; it pushes for only "the northern oriole".

But why should their authority bind the editor of our local newsletter — and many other people — who have been talking about *Baltimore orioles* year after year, as far back as we can remember? Is this somehow on a par with the convention of changing a woman's name upon marriage? Emma Woodhouse, in Jane Austen's novel, gently admonishes her father that they must no longer speak of her former governess as "Miss Taylor", since she has become "Mrs. Weston". Mr. Woodhouse was an old man clinging to an old habit; but to us the orioles are **the same birds as they always were,** regardless of any intermarriages with Bullock's oriole way out there on the Great Plains.

Above all, the two kinds of orioles are strikingly different in their looks. The males of both kinds, to be sure, are gorgeously orange and black, but the pattern matches only in part; for Bullock's oriole has more orange, extending beyond the breast to the sides of the head and even to the crown, whereas the head of the male Baltimore is all black, and the white bar on the wings is much wider in Bullock's Oriole. The startling difference in plumage not only registers upon any birdlover;[6] it should also arouse the curiosity of a scientific observer and direct his research toward the ritual of courtship: Where the breeding ranges overlap, does a male Bullock's oriole with his gaudier feathers attract a female Baltimore oriole more successfully than the converse — a male Baltimore displaying before a female Bullock's?[7]

The question bears, furthermore, upon theories of evolution; it suggests that Bullock's oriole developed as a successful offshoot, because in the separate envi-

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[ABEILLE'S or BLACK-BACKED ORIOLE], although the former two intergrade in the southern Great Plains, and the latter two in northern Durango; two species are sometimes recognized, with *galbula* as one species and *abeillei* merged with *bullockii* constituting the other" (p. 738; the brackets are theirs). *Icterus abeillei,* or (as now designated) *Icterus galbula abeillei,* not occurring north of the border between Mexico and the U.S., was not mentioned in the previous editions (see above, note 1).

[6] For other, less prominent features, see G. M. Sutton, "Oddly Plumaged Orioles from Western Oklahoma," *The Auk,* 55 (1938), 2.

[7] The dull-colored females differ also, but only in minor shadings. It may be safe to assume that a male of either kind would court a female Baltimore or a female Bullock's impartially. See C. G. Sibley and L. L. Short, "Hybridization in the Orioles of the Great Plains," *The Condor,* 66 (1964), 130-150; they based their study, however, on 623 collected specimens, rather than on observation of live behavior. Their article was most influential in convincing the A.O.U. that the Baltimore and Bullock's orioles belong to the same species.

ronment of the West, with its open woodlands, the more vivid pattern prevailed. In any case, it was only after the grassy plains, between the East and the West, were settled by white people and trees grew up around their farmhouses and villages, that both kinds of orioles in that region increased in number so much that their interbreeding has become frequent and easily noticeable.

Given the biological and geographical facts, the English language obviously needs distinct expressions for the two things being talked about. It will not do to lump them together as "the northern oriole". No doubt a scientist, while writing in English about birds of North America, can resort to the clumsy Latin name *Icterus galbula galbula* or its abbreviation *I. g. galbula* instead of "Baltimore oriole", and *Icterus galbula bullockii* or *I. g. bullockii* instead of "Bullock's oriole".[8] But it defies common sense to hold that the previously established English words for identifying these birds have become incorrect — just because an authoritative scientific body has revised its classification of them and now considers them subspecies rather than separate species. Other users of the language would be wise to consider "northern oriole" as a recommendation, but then to reject it.

The change in terminology reminds me of the feminists' attempt to replace *Mrs.* and *Miss* with *Ms.* (pronounced [mɪ:z], which had been the Southern regional pronunciation of *Mrs.).*[9] Wherever their movement has gained ground, it has become "politically incorrect" to keep up the traditional usage; for the shift from *Miss X* to *Mrs. Y* has been symbolizing a great change in the woman, whereas *Mr. Y* remains the same after marriage as before. The feminists hate this part of the English heritage as "patriarchal", just as they are opposed to marriage itself unless there is perfect reciprocity in every respect.

The new-fangled *Ms.* succeeds in not informing strangers whether she is (or has ever been) married, as though such a fact about her were none of their business; if they see her in person, they can of course look at her ring finger and draw their own conclusion. Yet it is no more than a mere gesture against patrilinear family names. It purposely hides the fact that she got her surname from her father, or else that she got it from her husband; or even if she got it from her mother, then it came in turn from her maternal grandfather, not a female ancestor. *Mr. Y,* on the other hand, is of course presumed to have gotten his surname from his father, certainly not from his wife if he has one. Nothing that is now on the horizon will radically alter this system of hereditary surnames, so as to put men and women indeed on a par.

The feminists have attacked such ordinary, familiar English usages because they resent the **culture** that is thereby expressed. The ornithologists, on the other hand, who want to change from *Baltimore* or *Bullock's oriole* to *northern oriole,* are merely indifferent to the cultural heritage maintained through language. But they must be resisted by those of us who see the value of that heritage from the past and will not lightly give it up. The name *Bullock's oriole* perpetuates the memory of a worthy, if minor naturalist. The name *Baltimore oriole* is much richer than that. In a unique way it resonates with the glorious foundation of one of the English colonies in North America.

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[8] The nomenclature for subspecies requires that *galbula* be used in this fashion, because *galbula* was described earlier than *bullockii* (1758 and 1827 respectively).

[9] By dissimilatory suppression of the first sibilant in [mɪsəz].

The "Baltimore bird" is documented as early as 1669, decades before the robin in America.[10] It was one of the first of the smaller native creatures on this continent to attract the attention of the English settlers. The bright plumage recalled the very colors of George Calvert, the first Baron Baltimore, and his son Cecil, who founded the colony of Maryland[11] as a refuge for Catholics. The Protestants, who predominated elsewhere in the colonization movement, may or may not have noticed this bird; at any rate they found nothing in **their** English vocabulary that could apply to it so neatly. Thus the handsome songbird, along with the state of **Mary**land, can serve to remind us of an important undercurrent in the history of England and America: how that family, which had embraced the Catholic religion, contributed something permanent, unforgettable, and different to the new country.

Calling it the "Baltimore bird" implied that it did not resemble any specific bird familiar to Englishmen. *Oriole* was applied to it later; for the European oriole occurs just sparsely in parts of England and is little known there, being more characteristic of southern Europe. The combination *Baltimore oriole* is credited to Alexander Wilson (1808),[12] who remarked that it "is generally known [as] the Baltimore bird." Happily the combination, with its prestigious sound, became established in American English usage before the scientific classification of birds advanced to the point of deciding that the orioles (so-called) of the new world are not — after all — related to those of Europe, Africa, and Asia, but should rather be grouped into a family with the American blackbirds, cowbirds, and meadowlarks.

While the Baltimore bird (or Baltimore oriole) took up residence around farms and villages, it had no particular connection with the town of Baltimore, which was founded in 1729 and so named in honor of the noble family.[13] However, as the town grew to be a great city and far surpassed the fame of those barons, in people's minds the bird became associated with it, although actually ranging over half the continent.[14] That indirect association with the city on the East coast has influenced the recent ornithologists adversely. For when they concluded that *Icterus galbula* and *Icterus bullockii* constitute one species, *Icterus galbula,* and therefore are not entitled to different English names, they could scarcely entertain the possibility of just dropping the name "Bullock's oriole", and stretching "Baltimore oriole" to cover the western subspecies as well as the eastern. It would have seemed unfair to demote only the one English name, "Bullock's Oriole"; no, the other one, "Baltimore Oriole", also had to go.

But by a quirk, of the sort that we often observe in matters of language, the association of the Baltimore oriole with the city is now a cultural fact that will not give way to the preference of the ornithologists. For regardless of their recent decision, a major-league baseball team is called the Baltimore Orioles; and every player wears the emblem on his shirt — just like the Cardinals in St. Louis.[15] It would be absurd for anyone in Baltimore to propose a new name for the team, on the ground that the experts in ornithology have decided to say, henceforth, *northern oriole* instead of *Baltimore oriole*.

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[10] See my article, "The English and the American Robin," *The Third LACUS Forum 1976*, pp. 128-29. In the first citation *Baltimore* was misspelled "Baltenore".

[11] Officially in honor of Henrietta Maria, queen of England (Henriette Marie, daughter of Henry IV of France by his second wife, Maria de' Medici); but no doubt the Calverts were expressing their devotion to the Virgin Mary.

[12] See Craigie and Hulbert, *A Dictionary of American English on Historical Principles* (University of Chicago Press, 1944), s.v. "Baltimore". The first occurrence of *oriole,* according to the *Oxford English Dictionary,* is no earlier than 1776: "This beautiful bird is common in several parts of Europe" — in contrast to an explicit statement in 1848: "uncommon in England."

[13] Several other places in the colony had previously been called Baltimore but proved impermanent.

[14] The *OED* is oddly misinformed on this point: "found throughout North America".

That is unlike the situation of the Cleveland Indians, and other teams with similar names, which have been intermittently under considerable pressure to drop a name resented or rejected by the "politically correct" among the Native Americans and their allies. Such names were adopted, in the first place, out of admiration for the Indians of this continent — admiration for them at least as warriors full of courage, cunning, loyalty to one another, and ruthlessness. But that very stereotype, with its implications, annoys a sector of public opinion that is not negligible. On the other hand, it can scarcely come to pass that the ornithologists will some day be a pressure group, whose angry protests the baseball players of Baltimore have to fend off. We can rest assured that millions of baseball fans everywhere will go on calling them the Baltimore Orioles.

It is too early to predict whether the other millions of bird-watchers, after my generation, will dutifully defer to the authorities and say (for instance), "Yesterday we saw our first northern oriole of the year." I hope they will hold on to the more meaningful expression: "our first Baltimore oriole". The books, at least those for recreational bird-watchers, still give — along with the caption NORTHERN ORIOLE next to the pictures — also the old names "BALTIMORE ORIOLE" and "BULLOCK'S ORIOLE" within quotation marks, suggesting that the birds are sometimes called that, though not quite properly.

A guidebook, to serve its purpose, must in any case show the reader the striking difference between the eastern and the western race. For if you see one of them in an area where it is much less usual than the other, that is a truly memorable experience, which you want to share with persons of similar taste. You hope they will go looking for the same rare sight that you have just enjoyed. But if you were to call it merely "the western subspecies of the northern oriole", that would minimize the import of the bird's presence outside of its normal range. Only if the purview of a book is limited to a state or region where one subspecies occurs but the other hardly ever, can the authors then afford to suppress the old name, *Baltimore oriole* or *Bullock's oriole*.[16]

I reiterate that common sense requires the two names, in order to express a strikingly evident distinction. Returning to the motto, "Zoölogical nomenclature is a means, not an end, to Zoölogical Science," I have some further thoughts, as a linguist, about reforms in terminology. If an existing expression has wide currency, it should not be changed unless it causes people to misunderstand the facts.

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[15] Formerly this species was called simply "the red Bird" (as early as 1670) or redbird. *Cardinal*, referring to the bird, appeared first in a supplement, written up by the Sieur de Mitchel, to Joutel's *Journal of the Last Voyage Perform'd by Monsr. de la Sai[l]e to the Gulph of Mexico* (Engl. tr.: London, 1714), 191: "There is a Sort of Bird, all red, which for that Reason is call'd the *Cardinal;* this they often tame and teach to sing like a *Canary* Bird. This is what I have been told concerning the Town of *Veracruz*." Even without this notice we could surmise that such a picturesque designation occurred to Catholics, either Spanish or French, rather than to Protestants. But it must somehow have been picked up rapidly by some of the English colonies (perhaps through a vogue for this new kind of pet songbird); for Franklin in 1786 wrote, "It is rare that we see the Cardinal Bird so far north as Pennsylvania." Since his time it has extended its range even to parts of Canada

[16] E.g., W. J. Boyle, *A Guide to Bird Finding in New Jersey* (New Brunswick: Rutgers University Press, 1986), p. 12, etc.; M. B. Simpson, *Birds of the Blue Ridge Mountains* (Chapel Hill: University of North Carolina Press, 1992), p. 18, etc.; S. C. Kendeigh, *Bird Populations in East Central Illinois* (Illinois Biological Monographs 52; University of Illinois Press, 1982), p. 18, etc.

Many misunderstandings can be obviated by careful wording of the sentence, without abandoning the familiar terms. Let's say, for example, simply *the male red-winged blackbird,* but *the female of the red-winged blackbird,* since the female is brown, not black, and has no red on the wings. Granted that by the prevailing principle of nomenclature one name is supposed to be valid for the species as a whole, what then if it truly describes some members of the species, but not others? Now that the experts have concluded that the blue goose *(Chen caerulescens),* which lives mainly in central North America, is really just a color phase of the snow goose *(Chen hyperboreus),* we should for accuracy say *the blue phase of the snow goose;* it looks not the least bit like snow, whereas a flock of the typical white ones, seen on a field, reminds anybody of patches of snow left over after a winter storm and a thaw. Conversely, since the ornithologists have determined the great white heron *(Ardea occidentalis)* of southern Florida to be a color phase of the great blue heron *(Ardea herodias),* we have one species less than before, and we should say *the white phase of the great blue heron.*

Color is indeed a primary criterion for identifying the things around us. But often, when biological research proves that gross differences in color co-exist within a certain species, the color terms become confusing. The species *Ursus americanus* is called *the black bear,* but some individuals, especially in the southeastern states, are much lighter — the so-called cinnamon phase. Since no other species of bear lives in that area, a color adjective would seem unnecessary for ordinary purposes of communication — unless an individual bear has to be described, either as black, or as brown (or cinnamon). However, in Alaska the brown bear is quite distinct from the black bear, and more dangerous; so it matters practically, not just theoretically, to warn visitors about both kinds.

I would also point out that for cultural reasons the English vocabulary was **unevenly** applied to the phenomena of North America, and that such cultural motives deserve a measure of respect from would-be reformers. The American ornithologists, at the time that they substituted *northern Oriole* for *Baltimore* and *Bullock's,* were also dissatisfied with the established American terms for members of the falcon family, and changed them to match the ones used in England.[17] But the settlers on this continent, in the seventeenth and eighteenth centuries, did not transplant the sport of falconry (which was already somewhat on the decline in England); and so the many precise terms dropped out of use. Instead they distinguished several birds of prey by their favorite catch: What was the merlin in England, they called the pigeon hawk; a larger species, corresponding to the peregrine falcon of Europe, they called the duck hawk. And the smallest of the falcons, which in England is known as the kestrel, they called the sparrow hawk — unfortunately, in that the same expression, in England, serves for a quite different species, the smallest member of the hawk family, as distinct from the falcons, which have long, narrow wings and a peculiar notched beak. In American usage, regardless of such details, *hawk* became the general term for diurnal birds of prey, smaller than eagles.

This minor impoverishment of vocabulary, it seems to me, became part of the American heritage, and the loss of interest in falconry is hardly regrettable after all. The prevalent point of view among Americans likewise favored *fish hawk* rather than *osprey, marsh hawk* rather than *harrier,* etc. These expressions have the advantage of making the art of identification, out in the field, a little easier — especially for beginners.

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[17] "Thirty-second Supplement," *The Auk,* 90 (1973), 419.

Had I been consulted, without being a professional ornithologist, I would have urged such considerations, which (it appears) were either not brought up by anyone or else put aside as irrelevant. The sentiments that so powerfully affect the common use of language are supposed to have no bearing upon the sciences, where only the observable facts carry weight. But I question whether that is quite so in ornithology: Would pure scientific curiosity motivate more than a few to concentrate upon birds, if not for the attraction of their colors, their song, their graceful flight?[18]

It becomes a narrow-minded exercise of correctness to disregard the connotations that have grown up along with a well-known name, over an extended time, and to reject it for the sake of some broad principle. Even if the principle itself is wisely thought out, it does not deserve absolute control over language usage. In this regard, the history of languages informs us that when a certain pattern — morphological or syntactic — gains the upper hand and becomes a general rule, some contrary patterns linger where they are most firmly entrenched. For instance, the odd plural forms in England, such as *feet, mice, children,* are not mere hold-overs; they convey a somewhat different relationship to the singular from what is simply expressed by *hands, rats, boys.*[19]

The language makes room for much variety. It allows certain users to place special constraints — their own "do's and don't's" — which they would like other people to accept in full. But not all their constraints are amply warranted, even if most of them are. So we are under no intrinsic obligation to yield to their authority against our better judgement, when our individual judgement is indeed better, more fully informed and rational than theirs. That applies to any authoritative book, whether it is a famous dictionary or the *Check-list* of the American Ornithologists' Union.[20]

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[18] I confess it appalled me to read that Sibley and Short (above, note 7) got their data mainly by "collecting" — i.e., shooting — **hundreds** of orioles. To be sure, they were confident that both Bullock's and Baltimore orioles, as well as the hybrids, were on the increase throughout the region anyhow, and so this slaughter would not lead to the diminution or disappearance of these birds. What has been made illegal for other people, because it is **morally** wrong, does not apply to a professional researcher; his end justifies the cruel means.

[19] As I have explained in "Tradition and Psychological Reality in the Categories of Morphology, Illustrated by the Plural of English Nouns," *Actes du X*^{e} *Congrès International des Linguistes, Bucarest, 28 août — 2 septembre 1967,* III (1970), 317-321.

[20] After I read this paper to the LACUS audience in Vancouver on August 11, 1994, my friend and colleague Angela Della Volpe (from California State University in Fullerton) told me that by a happy coincidence, on the day she read my abstract, she heard Paul Harvey state in his radio news broadcast that the ornithologists, bowing to various strong objections, had decided at last to give up "northern" and go back to "Baltimore oriole". Neither she nor I, however, can confirm the accuracy of this report — which I would of course welcome if true.

Of these specimens (described by Sutton — see footnote 6), the one at the top is a pure (or nearly pure) male Baltimore oriole, and the one at the bottom a male Bullock's oriole. The four in between are unmistakably hybrids.